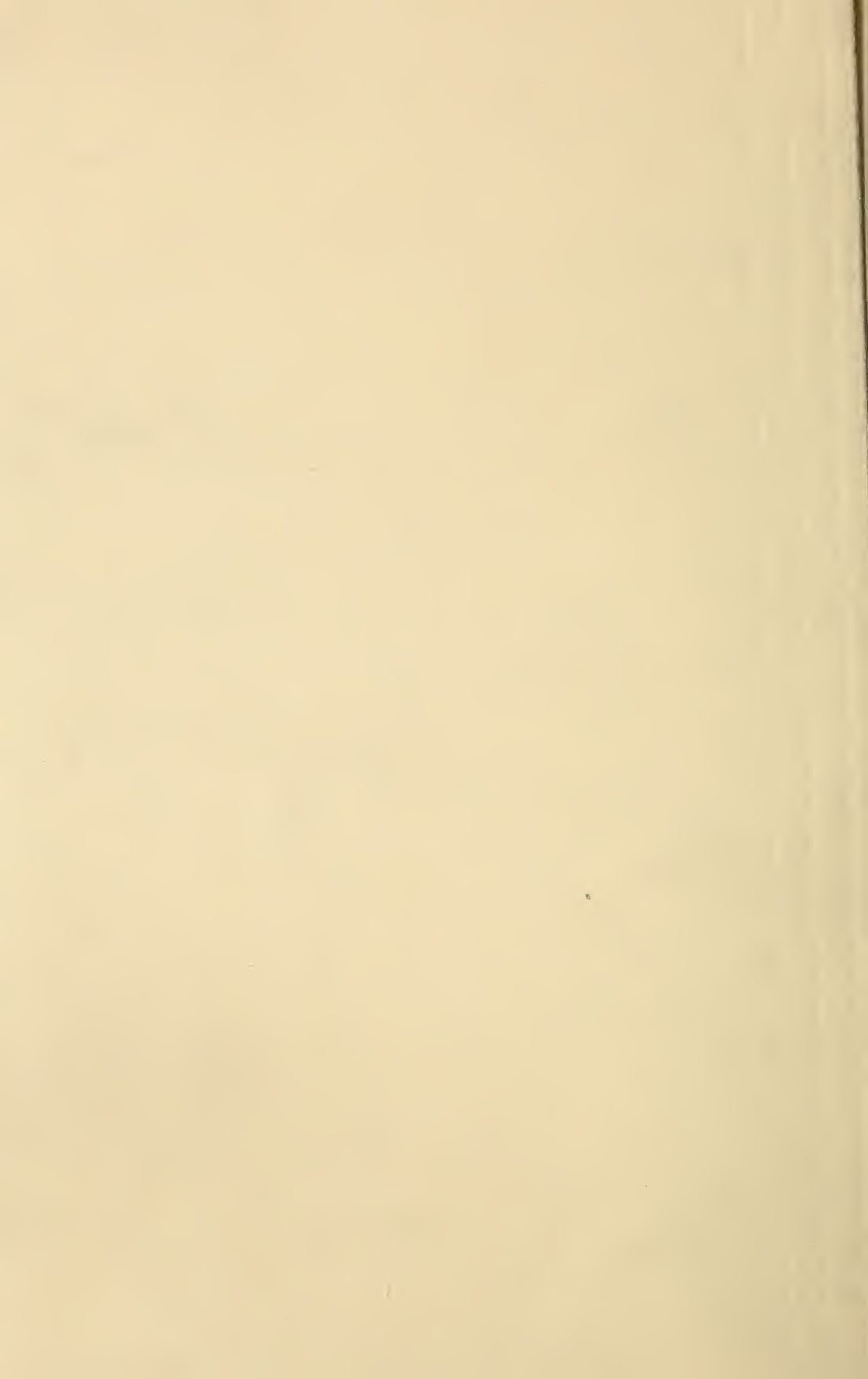
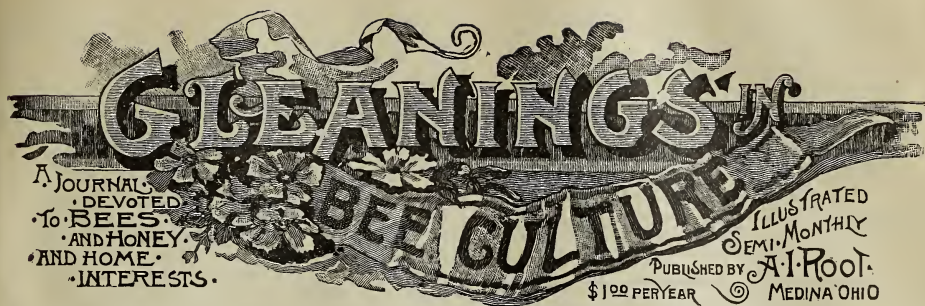


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Vol. XXI.

JULY 1, 1893.

No. 13.

STRAY STRAWS

FROM DR. C. C. MILLER.

How do you make out at prevention of swarms?

WHITE CLOVER is simply immense this year. Oh for the bees to gather it!

THE NOM DE PLUME epidemic seems to be breaking out again in the bee-journals.

PYTHAGORAS, who lived to the age of 90, attributed his longevity to the use of honey.

FRIEND ROOT, you did a good thing when you turned W. P. loose among those ancient bee-books. How he does revel in them!

WHITE CLOVER, says GLEANINGS, "is following up the locusts very closely." This year it got in ahead of locusts at Marengo. Queer season, anyhow.

CAN A QUEEN get through a smaller perforation while a virgin than after laying? is a question I wish some of our careful investigators would settle.

WHICH IS BEST—to grumble because I haven't bees enough to store all the honey clover yields, or to be thankful all over because my bees have all the honey they can handle?

CUTTING QUEEN-CELLS, it is certain, can not be relied on as a preventive of swarming; but it is equally certain that the practice has a tendency to delay and in some cases to entirely prevent it.

RAMBLER'S HEAD'S LEVEL as to the bottle business. Local prohibition is a good step, but it's not a very long step. Marengo has had no saloons for 30 years, but the neighboring towns make drunkards of her boys.

MICHIGAN'S AHEAD! Got an experiment station to be run at his own home by a live bee-man, bee-keepers to have direct reports from him in a live bee-paper. I don't blame Hutch a bit for doing a little mild crowing.

SHEEP AS LAWN-MOWERS in the apiary are favored on page 494. I've tried sheep, horses, and cows. Horses move hives the least of the three. Sheep made as much trouble in that direction as cows. Cows are the dirtiest.

A GERMAN WRITER advises against pavilions or arrangement of bees in several stories, as he finds that, when one of these colonies has a playspell and another commences a playspell after, the bees of the last unite with the first, thus weakening the second.

BURR-COMBS over top-bars can be greatly reduced in all cases where hives have the old-fashioned $\frac{3}{8}$ -inch space over top-bars. Just

nailed in the rabbet a strip $\frac{3}{8}$ inch thick, and there you are, with your space reduced a third, and burr-combs reduced a good deal more.

Bees gather sweet honey
On days that are soney,
And store it away in the comb;
It seems very foney
That thus they make money
As far o'er the meadows they rombo.

A RATHER SAD alternative, as Rambler puts it on page 474. A bee-keeper must keep cross bees, marry a fighting wife, or go crazy. As Rambler is still a bachelor, I guess his bees can't be very good natured, for the brightness of his intellect doesn't seem the least tarnished.

FRIEND ROOT, you wouldn't be so near the foot of the ladder if you had called for reports a month later. The losses kept on late in the spring, and many haven't as many colonies now as they had when they reported. In at least one State a good authority reports only 20 per cent left.

IT MAY BE SAFE now to report how many colonies I have left, as it is past the middle of June, clover is booming, and I don't think any more will die. A little more than half are dead, and some of the living might about as well be. I don't mind the winter, but deliver me from another such spring.

WATCH QUEENS at swarming, and see whether they are not, some of them, just as small as when virgins. I think some have even smaller abdomens than during part of their virginity, and I suspect the thorax remains unchanged in size, and I'm pretty sure it's the thorax that decides whether an excluder will exclude.

DIARRHEA was cured by a correspondent of A. B. J., last winter, he says, in this way. He cleaned the movable bottom-board, and placed under the frames a piece of brown paper on which a few drops of spirits of peppermint had been previously spilled. That seemed to stop the disease for two or three weeks, when the process was repeated.

QUEEN INTRODUCTION, Layens' plan. Take two or three frames from the center of the queenless hive; brush them on the alighting-board; quickly replace the frames; spray the bees on the alighting-board with scented sweetened water; spray also the queen and her attendants, and drop them in the crawling mass that are entering the hive, and they will be as old friends.

HOW EXACTING readers of bee-journals are! In reading a literary magazine, a religious paper, or daily newspaper, they don't expect to read the whole thing through, but each one picks out and reads just what he likes; but in a

bee-journal, if every thing from cover to cover isn't just to the taste of the reader, there's a grumble. But the very thing we don't like may just suit another.

"QUEEN-EXCLUDER," friend Pettit thinks, should be changed to "queen-bar." Exclude is to shut out, and "excluder" is an appropriate name when the device is used to shut bees out of supers, but quite inappropriate when it is used to shut bees in a hive, and more and more it is thus used as an includer. A bar is "any thing which obstructs, hinders, or prevents," so it is appropriate always, and has the merit of brevity. Shall "bar" be the name? What say you, Mr. Editor, and others?

HIVES FOR FARMERS.

WHAT DOOLITTLE ADVISES.

A correspondent writes that he has been induced to take GLEANINGS, and after reading two or three of my articles in the same, and others by Dr. Miller, Manum, etc., he has become interested in bees. He says he is a farmer and wishes me to write an article on the best style of hive, with management of the same, for the farmer who may keep a few colonies of bees. In complying with this request, I would say that all depends upon how "the farmer" intends to keep his bees and what time he expects to spend on them. If he intends only to hive the swarms when they issue, and put on the surplus-boxes when the white clover commences to bloom, paying no other attention to them (which is the way the average farmer tends to the bees), then I would say that the box hive, known as the "Miner Hive," is as good for such a one as any hive in existence. Why I single out the Miner hive from all the other box hives or log gums of the past, is, that, should our farmer ever want to sell his bees, they will bring from fifty cents to one dollar more per hive than they would in any of the others, on account of the provision Mr. Miner made so that the bees nearly, if not quite always, build their combs straight and true, so that, when they come into the possession of the practical bee-master, they are easily transferred to any of the movable-frame hives.

If, on the other hand, the farmer is willing to give his bees the attention which they require, which is far less than he would give one of his hogs or cows, then I would say that nothing short of a good movable-frame hive will be good enough for him. As to which of the frame hives is the best, I would say that much depends on the locality in which we live. If in the South, then the Langstroth or even shallower frames will do as well as any; but if north of latitude 42°, then I would prefer a deeper frame, if the bees are to be wintered on their summer stands. Of course, chaff packing will help the shallow-frame hive; but I believe it is something conceded by all, that a deep frame is preferable for the extreme North. A hive that will bring the colonies out strong in the spring is something worth looking after, where the crop of white honey comes early in the season, as it always does where white clover is the chief source of supply; and the hive which accomplishes this item the most perfectly is the one the farmer, or any other person keeping bees, should look after. Lots of bees in time for the honey-harvest means success to their keeper, while few bees at that time means a failure, no matter how many there may be at all other times. The early management of any hive consists in knowing that the bees have a good queen, plenty of stores, and that

they are tucked up warm and secure at the top of the hive. Bees will build up, even if the top of the hive has cracks in it; but all will see that the heat which passes out of these cracks takes so much warmth away from around the cluster, and causes the bees to burn just so much more fuel (honey) to replace the same, only to be carried away again. Therefore it pays well to see that the top of the hive is tight in early spring.

Plenty of stores are needed, for if the bees have to scrimp on account of fears of starvation, not nearly as many bees will be reared as there would be were there so much honey in the hives that the bees could use it lavishly. A hive that has twenty pounds of honey in it on the first day of April will, as a rule, give double the bees at the commencement of the clover harvest, that the one will which has only five pounds, providing the latter does not starve altogether. A good queen is an actual necessity; for, tuck up the hive as well as we may, and give the bees a surplus of stores, to such an extent that they may feel rich, yet if the queen is a poor or failing one, there will be only enough bees raised to keep up the dying population of the hive, resulting in little or no honey to the owner.

Seeing that the bees have the three requisites named above, little more will be needed from the farmer till swarming-time arrives. When the first swarm issues he will mark the date on the hive, so that in eight days he can go in the evening and listen for the piping of the first young queen, which usually hatches some time during the seventh day, where the swarm issues on the sealing of the first queen-cell, as it generally does. If he hears the queen piping, he may know that, if the weather is pleasant, a second swarm will issue the next day, unless thwarted in some way, and also that there is a queen hatched and at liberty in the hive. If he hears this piping, the hive should be opened early the next morning and every queen-cell cut off, which will surely prevent any after-swarm issuing from that hive. To be sure that no queen-cells are missed, it is well to shake the bees off each frame, in front of the hive, so that none are hidden by the bees being so thickly clustered on them.

The surplus-arrangement should be put on each hive as soon as its combs are filled with brood and there is honey coming in from the fields, no matter whether they have swarmed or not, and upon all others as soon as there are bees enough in them so that they can keep up the necessary warmth for brood-rearing, with the surplus-arrangement on. As soon as the sections are filled they are taken off, and more put in their places to the end of the harvest, when no new ones should be put on to become travel-stained and stuck up with propolis, so that the bees will be more likely to finish what are already on. Any farmer can do as much as is here outlined, and I have sometimes seriously questioned whether this will not give any of us as good results as the more frequent manipulation of each hive, which has been insisted upon in the past.

G. M. DOOLITTLE.

Borodino, N. Y.

CHESTNUT HONEY.

C. P. COFFIN CLAIMS THAT HIS BEES GATHER IT.

Friend Root:—"Woodchopper," on page 432, is very emphatic in asserting that the common chestnut does not yield honey, but only a small quantity of white pollen. Such is his observation after an experience of 31 years in a chestnut region, his opinion being that, as basswood

and chestnut bloom at the same time, the more showy flowers of the latter get the credit, while, in truth, the honey really comes from the basswood, and only a scantily furnished supply of pollen is the sum total derived by the bees from the long bloom, or "tails," of the chestnut. He asks Mr. Benton, who referred to "chestnut honey" on page 254, to tell us of the variety of chestnut, other than the horse-chestnut, which yields honey.

Perhaps, owing to the peculiar conditions of last year's (1892) honey season I can throw a little light on this question. By way of preface, I will say that the common chestnut is one of our most common trees in this section, where it attains a size and height equalling almost any of our forest-trees, the timber being used for many purposes, and considered particularly valuable for fence-posts and like uses where lasting properties are a desideratum. Throughout the range of pasturage within reach of my apiary, and all through this part of the State, are vast numbers of chestnut-trees which bloom here early in June; and as I write, the whitening top of a magnificent specimen of this tree is in view, though the bloom will not be fully open for some days yet.

Now, as between basswood and chestnut, the trouble will not arise here in deciding to which belongs the credit of a honey-flow, for I have never seen a basswood in this section. We hear of linn, or linden, in parts of the South, but not here. When chestnut is in bloom, most of our early sources of honey have gone out of bloom, and later ones have not come in. Just before chestnut there is, unless honey-dew prevails, a loafing-time among the bees. One of those times, bee-keepers know and dread, if they have put off taking the honey already stored until then, for it is a fight to the finish—tent or no tent—getting that honey.

Now, here comes a puzzle, if chestnut does not yield honey. Just as soon as the trees are white with blossoms the bees begin to hum, and pretty soon they have assumed that frenzied hurry and "get up and go" in leaving the hive, and that peculiar "plumping down" on entering, that tells the tale of "honey coming in," so plainly that "hefting" the hive is an unnecessary task in proving its increasing weight. Meanwhile the apiary and surroundings are redolent of the pungent odor characteristic of chestnut-blossoms—an aroma unmistakable that pervades the atmosphere far and near during their bloom. Not only is this odor particularly strong among the hives, in the air about them, but it is more pronounced on opening them and in the extracting-room, to which the flying bees are attracted so as to be as troublesome as in a dearth of honey.

The conditions of the honey season mentioned were owing, in part, to the succession of freezes in spring which killed or injured the buds and blossoms of trees and plants that furnish our principal honey-flow of April and May. There was no spring crop, the bees barely eking out a living till chestnut-bloom in June, when the only yield of the year was obtained in the shape of surplus, and even that was lighter than usual—winter stores coming later from bitterweed and fall flowers. This surplus was unmistakably from one source. The only blossoms bees were seen on were chestnut. Hives, extractor, and honey had the odor of that bloom; the honey tasted, when new, of the same flavor so strongly as to be unpalatable; and, even when thick and ripe, and after candying, its characteristic flavor was noticeable. My honey-book of last year's date has this note: "June 15—Honey-flow began June 10th, from chestnut unmistakably, as odor indicates source. Began extracting 17th; crop 468 lbs."

In average years, honey stored just before—possibly a certain amount with—and after chestnut, from other sources, and taken off all at the same time, has not the distinctive flavor so noticeable as that of last year; but I do not remember a year when chestnut was in bloom that the hives did not have the same odor as the chestnut-blossom, and the honey the corresponding flavor if extracted at the time.

Mr. Benton mentions this honey as light in color in Carniola. It is rather darker than our average fall honey here. In the fall it grows thick, and is called "rich," and is much liked by many, and candies with cold weather.

In these particulars it seems to me we ought not to be too certain *we* are right and *somebody else* wrong. A plant or tree may be fruitful, and yield honey in one locality, and refuse to do so in another. Grapes vary in different localities in flavor, though of the same variety; sometimes, even when within a stone's throw of each other, owing to difference in soil. Climate affects color as well as flavor. In Doolittle's notes in the A B C book, he says buckwheat has yielded honey in his locality only five times in 12 years; hence he gave it up as a honey-source.

So it would seem, in summing up, that, while chestnut, perhaps, may yield no honey in Woodchopper's section, it may do so in Carniola; while as to its yield in Mississippi, so sure has it seemed to me as a prolific and unfailing source, that, if I had been asked to name one or more sources of wide extent from which bees, during such bloom, gather honey of distinctive flavor as unmistakable as basswood and white clover north, I should, without hesitation, have named "chestnut" (June) and "bitterweed" (Aug., Sept.), the flavor of both being alone sufficient proofs—the last named disclosing itself in the milk of cows early in spring, when the plant is tender, and eaten by them, as well as in honey from its blossoms later in the year.

Pontotoc, Miss., June 3.

C. P. COFFIN.

P. S.—A south breeze bringing the well-known odor. I have just walked over to the trees, and find the blossoms opening rapidly, and the bees already thick upon them, and the lethargic appearance in the apiary changed to one of activity. Inclosed is a sprig. C.

CAN THE BEES CHANGE THE SEX OF AN EGG?

AN INCIDENT THAT SEEMS TO SHOW THAT THEY CAN.

On page 385, near the bottom of the first column, Dr. C. C. Miller says: "Get clearly, then, the idea that an egg that is fertilized as it passes the outlet from the spermatheca will produce a worker or a queen, and one not thus fertilized will produce a drone. No after-treatment can change its sex."

I will not repeat more of said article. I believe Dr. M. to be correct *should* we move worker eggs to drone-cells and *vice versa*; also that a drone egg will always produce a drone under all circumstances, and nothing else. So far as I have observed, and several other bee-keepers with whom I conversed and corresponded on this subject, bees can and will, under certain conditions, change worker eggs to drones.

In 1884 I started in the spring with 20 colonies, mostly poor hybrids and blacks. As the prospects for a good honey crop were favorable and the spring fine, I increased my bees to 80 colonies, nearly all by artificial increase, raising all my queens from two tested queens. The latter

part of April I divided one black colony, taking all eggs and unsealed brood; also all drone brood and larvæ, with the queen, on a new stand; then I went to the hive containing a tested queen to see if I could find a comb with only eggs and young larvæ. Every comb had some larvæ which was too old, except a frame of drawn foundation on which the queen was laying, having filled about two-fifths of the frame in the center. The next day I went to the black and queenless colony, and looked over the combs to see if they had started queen-cells on larvæ I might have overlooked. Then I went to my tested queen and got that new comb which was now pretty well filled with eggs, and gave it to the queenless colony. About five days later I wanted to see how my queen-cells were getting along, when, to my surprise, they had gnawed three holes in it about the size of a fifty-cent piece. Along the edge of each they had several queen-cells, and around these a circle, about one inch wide, of drone-cells with larvæ in them, which hatched in due time into perfect pure Italian drones, the same as in their mother hive. There must be a certain time up to which the bees can remove the spermatozoon from worker eggs; and it is my opinion that this is not over 24 hours after the egg is laid.

I do not want to get in a quarrel with Dr. M.; but if he does not believe me, let him try the experiment for himself. I have given every detail, to let those who are interested in it test it. So far as I am concerned, I am just as sure about it as I know that day follows night and night follows day. I have waited to see whether Doolittle or some of our headlights would give Dr. M. a gentle hauling over the coals for his bold assertions; but so far no one has done so.

Sabinal, Tex. J. A. SCHUDDEMAGEN.

THOSE OLD BEE-BOOKS.

ANOTHER PEEP AT THE "GOOD OLD TIMES."

The book noticed in our last review was Butler's *Feminine Monarchie*, published in 1609. Of this work we have two copies, the second one being printed in London in 1673, in the Latin language—the common vehicle for scientific instruction in those days. This rendered the book intelligible to all civilized nations. This need of a universal language is shown in the invention of what is now called Volapük, or universal language—a mode of speech with no irregularities or exceptions. The book in question is 4 x 6 inches, and over 2 inches thick, being very "chunky," and more than four times as thick as the English copy. It is divided into four parts. The first part, devoted to bees, contains 200 pages. The rest of the book is English, and is devoted to gardening. The first division of it is called the "Garden of Eden," containing 300 pages; then follows the "Planter's Manual," 140 pages, winding up with a disquisition on soils, 170 pages. Counting indexes and all, the book has about 850 pages, printed on thick paper. This makes the volume so stout that it reminds one of some folks of whom we say they would "get there sooner by rolling," as their equatorial diameter exceeds the polar.

Whatever may be said of their knowledge of bees, I can't help feeling that "Mr. Hugh Prat, Kt.," the author of the "Garden of Eden," could give the gardeners of to-day a good many points in their chosen line, and have some left. His plan of arranging trees, flowers, etc., shows that the English have long been in the front rank in their efforts to make this world beautiful and productive. The "Planter's Manual"

was written by Charles Cotton, Esq., and seems to be all one could ask for in that line; in fact, I believe I shall adopt it as a text-book. True, there are some allusions in it to planting things when the moon is right, which seems to be all "moonshine;" but the wisdom of watching the moon seems to be about this: Suppose you plant a tree on the 30th of April, and the moon gets "full" that night. Well, by referring to your almanac it will furnish you an easy means of remembering when the tree was set out. It is a chronological arrangement.

The treatise on soils was written by J. Evelyn, Esq., by order of the Council of the Royal Society, June 24th, 1676. Like the multiplication-table of those days, I can't see but it is just as good as the one we use. Really, I am firmly convinced that the people of to-day would be greatly benefited if they would inquire wisely concerning the things that have been. Gunpowder is spoken of as an ingredient in making good soils. Enough of it will doubtless make things come along fast enough. Our clay lumps here in Medina County certainly need something of the kind to crack them open.

But we are here to examine Butler on bees, and not gardening; but the subjects are so intermingled that it is difficult to separate them. One strange thing we learn from Butler is, that music was written in his day on four lines instead of five as now. How came notes of music in a bee-book? In describing the swarming-note, Butler uses music-notes to represent the sound. The hum of the workers is represented by striking G once and A (first key above) eight times in rapid succession. Just try it once. It doesn't take much practice. Probably the organ would be better than the piano, and the violin still better. If the latter instrument is used, a green hand will produce a more curdling effect. Strike F (above middle C) rapidly some twelve times, and that gives the pitch of the queen. Let me quote a few words:

"She continues the same some four or five semibreves, sounding the end of every note in *C, sol, fa, do*; so that, when they sing together, they sometimes agree in a perfect third; and if you repeat the termination of the bass, sometimes in a diapason (octave). With these tunes answering one another, they go solemnly about the hive to give warning to all the company."

Perhaps Dr. Miller can explain this at the next convention.

One of the most remarkable things I ever read in a book written by a man of Mr. Butler's attainments is the following. It is too good to be lost. I will reduce it to modern spelling:

"A certain simple woman having some stalls of bees which yielded not unto her her desired profit, but did consume and die of the murrain, made her moan to another woman more simple [unskilled] than herself; who gave her counsel to get a consecrated host and put it among them; according to whose advice she went to the priest to receive the host, which, when she had done, she kept it in her mouth; and being coming home again she took it out and put it into one of the hives. Whereupon the murrain ceased, and the honey abounded. The woman, therefore, lifting up the hive at the due time to take out the honey, saw there, most strange to be seen, a chapel built by the bees, with an altar in it, the walls adorned by marvelous skill of architecture, with windows conveniently set in their places; also a door, and a steeple with bells; and the host, being laid upon the altar, the bees, making a sweet noise, flew round about it."

No doubt a bee might have been seen on a little wax stool, leaning back and playing some of Bach's fugues in the key of bee-flat, on a little wax organ, while the wax bells rang a merry

wax chime. Does Mr. Butler relate it as fact? He meets every conceivable objection to it with all the skill of a lawyer. And who shall say the vision was baseless? Quite likely some cells were capped over, and became colored or stained in such a way as to resemble the front of a church, by using the imagination vigorously, just as the stars may be made to represent the outlines of a sugar-bowl, bee-hive, or fanning-mill, at pleasure. As to whether wax bells would ring or not, just hear Mr. Butler's own defense, and be not faithless:

"And if any shall say that those bells, being made of such metal, would give but a weak sound when they were rung to matins, they must consider the parishioners lived not far off. And so I think these captious critics will hold themselves satisfied."

Any thing but a captious person for me.

What a wonderful thing is the human mind when led captive by the imagination, and deprived of some of the most evident truths in nature! How long mankind has been in reaching the present high state of enlightenment! and yet how prone to that which is absurd and inexplicable! It seems strange that men who had such high conceptions of religion as Mr. Butler evinces in many places could have coupled it with the action of a mere insect. But let us not be uncharitable. Those were days of wax tapers and torches, while we live in an age of electricity and steam. The greatest valley of darkness that the human mind has ever enlightened is itself.

In the remaining books which we have to review, we find that much of the superstition drops off, and we seem to be among men more like ourselves.

W. P. R.

Medina, June 24.

SELF-HIVERS VS. QUEEN-TRAPS IN CONTROLLING SWARMS.

THE SELF-HIVER PREFERRED.

On page 401 our old friend Henry Alley argues that a queen-trap will catch a swarm as well as a self-hiver. All we have to do is to return the queen to the hive two or three days after the swarm has issued—so he claims.

In a foot-note to a similar article written by Mr. Alley for GLEANINGS (April 1st, pages 257, 274), Mr. E. R. Root says: "The bees, having been thwarted in their efforts to carry out the instinct of nature, remained in the hive, frittered away their time doing nothing, and finally end'd up by killing the queen." This is in reference to using queen-traps as advised by Mr. Alley.

Well, it is simply this: With a queen-trap the swarm returns to the old hive, the swarming fever *not* satisfied, and the whole thing will work in nearly every case as described above by Mr. Root. But with a self-hiver that would hive the whole swarm, the case would be entirely different, because then swarming would actually take place, the swarming fever be satisfied, and the swarm go to work with all the vim and energy always displayed by new swarms (at least I think so).

The supers should be put on the hive of the new swarm, and at least part of the brood-combs and young bees also transferred to the new hive, and the whole made a rousing colony.

I am afraid Messrs. Pratt and Root have made a mistake in placing the new hive under the old one. Lifting the old hive, and perhaps two or three supers, or even turning them, as they say, "cat-a-cornered," to ascertain which hives have been swarming, is too much work. Better have the hives in front, and only a cover

to lift. I somewhat suspect that they have done it, and also adopted a peculiar queen-escape instead of a cone, in order to avoid infringing on Mr. Alley's queen-trap patent, but I don't know positively.

In case the self-hiver and new hive should be left under the old hive for several weeks or months, the probability is that the work in the sections would cease, and the bees fill both new and old hives, with or without swarming. If working for comb honey, our aim would be defeated; if extracted honey is the object, better put the two hives one upon the other, without any self-hiver or honey-board; or, better still, adopt a large hive, such as is used by the Dandants and most of the European apiarists.

Knoxville, Tenn.

ADRIAN GETAZ.

(*American Bee-Journal*.)

[The first self-hiver that Mr. Pratt devised was gotten up on the horizontal plan—that is, one hive was in front of the other; but it was a little difficult to level up two hives exactly in line so the connection between the two would be absolutely bee-tight. He later devised a method whereby the hive to receive the swarm would be below the parent colony. But as this brings up the question of lifting the upper hive to see whether the swarm has gone below, there is a possibility that the first sort of hiver would be preferable, and there is no reason why the apiarist could not use this plan if he prefers. In regard to the queen-trap answering the purpose of a hiver, Mr. Getaz agrees with us exactly—that is, it does not satisfy the desire for swarming, *unless* the swarm is attended to immediately, or shortly after the issue of the swarm. In that case it is a long way from being *automatic*, and goes but little further than the old reliable plan practiced by so many bee-keepers, of clipping the queen to prevent the escape of the swarm. Either the trap or clipped queen requires very soon the attention of the apiarist. Pratt's automatic hiver, after it is once attached to the hive, may be left, and nothing very serious will happen if it is not attended to in ten days or even two weeks after the issue of the swarm and its return to the new hive.]

RAMBLE NO. 87.

HARRY'S VISIT.

"Good afternoon, Mr. Rambler. Well, well! Is not that a hard way to travel—on 'shank's horses,' as the old saying is? Why don't you get a horse or bicycle?"

"Why, my friend, it's the easiest thing in the world. Just see here: it is simply the putting of one foot before the other, just one foot before the other, and persist in it, and you will get over much ground in a day. Now, sir, the trouble with you and other people is that you fail to persist, and look around for a wagon to get into. Why, sir, I have known young healthy men to hang around a village store for a couple of hours or more, wasting valuable time waiting for a chance to ride a mile or so, when the simple putting of one foot before the other would have landed them home, with much benefit to their muscles and mind also. Yes, sir, the simple putting of one foot before the other has resulted in carrying me over many a five miles, and giving health and muscular development. See here, now, Mr. Squid," said I, raising my trousers legs, "just see the development of my muscles; you can not beat that."

Mr. S. raised his trousers just a little, and the non-development was so obvious that they

were soon dropped. Mr. S. turned away with a wicked leer in his eyes, and tauntingly remarked, "Yes, brag about the size of your calves; but you couldn't blow up a lung-tester, could you?"

That remark sort o' riled me; and as he slid around the corner of the house I shouted, "Bring on your old lung-tester; if I can't blow it up I can kick it up."

I picked up my various traps and proceeded to put one foot before the other until my cabin was reached, and I mentally resolved to exercise my kicking powers on the next lung-tester I came to.

The next episode in my recent life was a very pleasant call from my friend Harry (in the name H. E. Wilder the H stands for Harry).

"Why, good morning, friend Harry; step in and sit down. I have one chair and a bee-hive to sit upon. You can take your choice. You see, we don't put on much style. Take an orange; or, won't you have a glass of lemonade? No sticks in it, mind you, on this ranch."

"Well, Rambler, I don't care if I do take a little ade; and you know that I do not like sticks in mine any more than you do in yours. Hello! got a typewriter, have you? Where did you find that?"

The state of affairs
in CALIFORNIA is
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very unsettled!

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FOREIGN FINGERING.

"Oh, that is one of those Odell machines; and friend Hutchinson, of the *Review*, sent it to me, and I am just learning how to run it. I find that, if I put it down on this box and get a general bird's-eye view of it, it works much better. Our friend Pryal, of Oakland, as soon as he learned that I had a writer, sent me a whole grist of directions; said that I must not get on to it with my feet and try to write with my toes; and then he further insinuated and said, 'If you wear false teeth, go slow at first or you will rattle them all out on the table,' and wound up by advising me to take lessons of a lady teacher, just as he did, and added much about romantic results, harmony, felicity, etc. Of course, you met Mr. Pryal at the convention. Oh! he impressed you as a very suave and dignified gentleman, did he? Well, Harry, did you ever see a Tennessee moonshiner? You didn't? neither did I; but I have some ideas of them."

"Mr. Rambler, I see that you have a sign up on the borders of your grounds, 'Danger to horses and women.' Have you been troubled much with those quadrupeds and bipeds?"

"Well, Harry, you see my cabin is right up here among the bees; and people riding along the trail sometimes take a sudden notion that they want some honey; or wish to inquire the way to Riverside; and the first I know they are up here among the bees, where themselves and horses are in danger of getting stung. Not wishing to pay for a dead mustang I put up the sign, 'Danger to horses;' soon after, a man and young lady drove up to the sign, and instead of the man getting out, he sat on his cart and sent the woman past the danger-point. The bees began to hover around the posies on her hat, and at about every three steps she would give a little shriek, and say, 'Oh! I am afraid of them.' The little woman was of a nervous temperament; and, a bee hovering too near her ear, she made a desperate pass at it and hit her ear-ring. In her nervousness she thought the dangle from the ring was a bee, and she paddled it for all it was worth, and sent it flying into the bushes, and then discovered that she had lost her ear-ring. I sent her back to the big man in the wagon, and hunted in the grass

for the jewel, and at length found a sort of glass object which I presume was very valuable. Then, after all said and done, I had no honey to sell, for I had not commenced to extract. They sadly departed, and I dittoed to my cabin, and straightway added women to my sign. The next time that couple came, the man had evidently had a course of repentance; and, leaving the woman in the wagon, he came up with a bold front; and the first pass a bee made at him it got in its fine work. It lightened my labors all day to think how neatly a bee can take the starch out of a great big man when the occasion demands it. Well, Harry, we have had a very pleasant chat. I must now go to extracting honey. I can not sit still long now. You know I want to run off enough to make six tons this week. Come along and I will show you how I do it."

"Hello, Rambler! you have one of those new Crane smokers, have you? Well, it has a crane's neck to it, anyway. How do you like it?"

"I like it very well; it has a fine blast, burns fuel that my old smoker would not burn, and holds out well; but I have one fault to find with it—that nozzle is lined with sheet iron, and it seems to hold the heat more than a single thickness of tin, and it makes a hot thing to handle. I should think that, if asbestos is applied anywhere, it should be applied around that nozzle. A good thickness here might make it more comfortable to handle. You see, it works easily. Now, Harry, we will go out into the apiary. You carry the smoker and I will run the wheelbarrow. Bees going up your sleeves? they—well, grin and bear it, or bandage your wrists with a white strip of cloth, as I do. I do my ankles ditto sometimes."

"See here, Rambler; what is this thing on these two hives, sort o' tying them together like the galling bands of matrimony?"

"That is the new and famous Langdon swarm-preventer. The inventor sent me one, desiring me to give it a trial. Colony No. 1 was

all ready to swarm, and the application of the device and the running of all of the working force into hive No. 2 prevented the issuing of the swarm, and kept them all at work; but somehow both turned up queenless in a few days. The colonies evidently had old queens, and wanted to supersede them. The principle is all right; and for a comb-honey apiary I have no doubt it will be a desirable invention; but in an apiary like this, worked for extracted honey with two supers each, there is but little desire to swarm, and a swarm-preventer would be useless."

"I see you have the queen-excluders and Porter's bee-escapes in full force here. How do they work this year?"

"Well, Harry, they work nicely except when the queen gets above the excluder, which they will do sometimes; and I think it is the fault of the zinc, for it is some of the first manufacture. You know a cat will crawl through any hole that she can get her head through; so with a queen—she will go through any hole that her thorax will go through. The first round of extracting went very nicely; those third supers, with the excluders below, came off every time with the combs free from bees; but now I am restricting the queen to the lower hive; and in making this change I find much brood in the second story, and the brush has to play its part more or less. I hope to get these two supers filled twice with honey before the season closes. I think these supers are too deep to work to good advantage under this system. I think that a Heddon case would work better. The next great invention, Harry, is in connection with the shallow super, with our electric un-

"Yes, I suppose you will have to go and see your family. Well, *adios*."

"*Adios*."

RAMBLER.

CLIPPING QUEENS' WINGS.

COVERS FOR BEE-HIVES; HOW TO FIND A QUEEN, AND HOW TO CLIP HER WINGS WITHOUT HER KNOWING IT.

The first determination in the clipping of queens is the season or time of the season. When a farmer has 200 acres of grain to cut with one machine he watches it closely, and begins when it is a little green, and finishes when it is very ripe. If he should not begin until the earliest was thoroughly ripe, the last would be so "dead ripe" that most of it would shell out so as to be hardly worth the harvesting. One machine is able to cut about 10 acres a day, and 20 days' time will extend from the beginning of the ripening to the over-ripeness of grain. It is no truer of grain than of clipping the queens at the right season, which comes when there are two or three combs full of brood and patches of brood in three or four other combs. Queens may be clipped when there are only two or three combs of brood; but this would come earlier in the spring, when the warm hours of the day are few and the mornings and evenings are cold. The colonies being low spirited at this time, queens are quite apt to be "balled," especially if the queen has been handled or frightened.

Then it is just as necessary to avoid letting the season get too far advanced, as then seven or eight combs would be filled full of brood, making large areas to search in or to find queens; the brood would also extend around the lower and side edges of the combs, where queens would be apt to hide and be hard to see; there are more bees in our way, and, what is still more, when brood is so plentiful the queen seems to be less interested in her work, and is more liable to run from comb to comb, or even run off the combs entirely on to the side of the hive. When there are not more than two or three combs containing brood in the hive it is rarely that the queen will leave it; but if several combs are full of brood, the first desire of the queen seems to be to get off from them at once. Thus it may be inferred that the most propitious time is after the colonies begin to build up, and before they develop very considerable strength; and this period probably does not exceed twenty days. Some colonies would be in the best condition sooner than others, and it would require more or less than twenty days, according to the number of queens and skill of the operator.

Next after the time comes the hive. Some may think one hive as good as another; but this rule is varied. It wants a hive which we can get open and find the queen at her regular work undisturbed; and the first thing encountered is the cover. The latter should be flexible, so as to be removed gradually to prevent jars or snaps. A telescopic cover of lumber, and the frames covered with enamel cloth, accomplishes this; but as enamel cloth is eaten and destroyed by the bees it is too much trouble to keep it renewed; and it is also best to have a $\frac{3}{8}$ space between the cover and top-bars, to avoid propolis. A solid board is propolized around the edges, and nearly always comes up snapping. I have watched many removing the flat board covers, and they stand squarely behind the hive and grasp the cover at each rear corner, and pull straight upward steadily. When the propolis breaks, the cover is raised suddenly, and often jumps quite out of their



capping-machine, and a proper extractor. We will put our whole super into the extractor, and throw out the honey at once, and handle not a frame—*sabe?*"

"Why, Rambler, what a visionary fellow you are! I believe you will soon imagine that you can get the bees to bring the honey and deposit it right in the tank."

"Perhaps, Harry; but remember that, if it were not for us visionary fellows—A. I. Root, Dr. Miller, and I—you would plod along in the old rut. But you have been making that extractor hum for an hour, and you must by this time have a good appetite. Let's go to dinner. What have I got for dinner? Well, I am so rushed these days that I can't stop to heat up, cook, and wash dishes more than once a day, and that is in the morning; so I'll give you what I have—cold potatoes, cold pancakes, canned beef, cold coffee, etc."

"Well, hunger makes a good cook," added Harry, as he arose from our humble repast; "but I believe I shall have to be going."

hands. In thus proceeding, the motion is no less pronounced than is the shock to the hive and inmates. It would be a little better to raise one corner first, and, as we pry up with one hand, push down with the other; but even then a stiff cover must make some report.

The most satisfactory cover I have found is made by cleating together three or four pieces about one-fourth inch in thickness, using three cleats. The cleats hold the light lumber straight, as it has not strength to warp like thicker boards. It allows moisture to pass through them easily, and is quick to become dry again. Of course, this thin light wood could stand very little rain and sun, so I put on another cover, of tin. The difficulty with tin lying flat on the ordinary board covers is, that moisture and sweat from the bees collects on the inside and rusts the tin and rots the wood badly. In this thin cover, the cleats are on the upper side—one on each end and one across the center; and when the tin is put on it leaves an air-space of the depth of the thickness of the cleats. Then the tin is tacked to the sides but not at the ends, so that the air and moisture can escape. This cover can be removed with the least jar by prying up the corner; and its bending disposition extends gradually across the hive.

To skillfully hunt out queens, instead of looking for a bee that is a little longer than any other of the multitude, we take in the comb at a glance, and locate the queen by a little circular cluster of bees regularly formed around a central vacant spot, upon which is one bee alone. A jar or snap in removing the cover or lifting the frames dispels this regularity, some bees going on the war-path while the rest rush into clusters, with the queen hiding promiscuously among them with about as much disorder as it would make for a man to enter a ballroom and exclaim at the top of his voice that the building was on fire.

If the colony has brood in five or six combs, and it is earlier than eleven o'clock in the day, we may expect the queen to be on one of the two middle combs. If there are six or seven combs of brood, then it should include the three middle combs. After noon, if the sun shines warmly, she is usually nearly outside the brood-circle and may step over on to an unoccupied comb; so a: this time of the day I would not examine the center combs first. By these observances the queen may be found on the first comb examined, one-third of the time, and the second comb would include one-half of the times.

If the hive was opened and the frames handled accordingly, we shall find the queen busily engaged at inspecting cells and laying eggs. At first the light does not disturb her; but in a moment or two she will become disturbed and start off on a rambling tour, so what we do should be done quickly.

Use the small scissors from the counter store, holding them about half open; follow the point along three-fourths of an inch, directly over the queen wherever she moves. Soon she will put her head into a cell and keep it there about two seconds. At the same time her wings rise up at about 25 degrees, when one outside wing may be caught, and clipped as soon as caught. This is the easiest, quickest, and best way. One-half of the time is usually spent in catching. Now, you may try this and fail; but the cause of failure is generally because the scissors are held three inches above the queen; then when she stops you move the scissors to make the clip. She starts for another cell just in time to save a wing. Your sudden movement attracts the attention of an attendant bee, which flies up and alights on the points of the scissors.

Becoming somewhat vexed at this you open and shut the scissors three or four times to cut her legs off, and finally thrust the bee to the ground, with a full-arm movement. This imparts a tremulous motion to the comb, which is held in the left hand; the queen is disturbed; and when the scissors return to business you will probably try the difficult, uncertain, and dangerous plan of catching a wing as the queen runs, and finally conclude that the plan works better in theory than in practice.

It is not only best to open hives quietly and handle frames carefully in finding queens, but it is a good practice for all the time; and with the really expert apiarist it becomes natural and customary. In the busiest part of the day there are only a few bees that remain as guards; and molestation of the hive is so little expected that they hardly recognize an intruder when he comes, so there is no use to smoke the sentinels at the entrance; and the smell of smoke to a bee or two here and there as the cover is raised is an abundance. Even if the tops of the frames and hive are covered with bees, there may not be a shadow of reason to use smoke on them; but if there is a necessity for smoke, only a bee or two may need it, and those may be distinguished by the manner in which they hold their wings or move along. Such bees should not be smoked, because other bees near them will be easily scared, and go down between the combs, and set every thing in a panic; so I hold the smoker-nozzle close enough to the dangerous ones to let them know I can stand a battle with them if necessary, and this changes their threatening manners.

Always go prepared with smoker at full blast, scissors in the right vest pocket, and veil on. Kneel on the left knee at the side of the hive on which the sun shines; holding the smoker in the right hand, remove the cover with the left, very slowly at first, and use no smoke unless many bees dart out from under it, and then the smoke should not be driven under the cover, but it should be directed against the hive below the cover so that only those bees which fly out will smell it. Sunlight is nearly as good as smoke. When the cover is high enough, set the smoker down and lean forward, and quickly decide on which comb the queen is most likely to be; and while the left hand carries the cover to the left, and places it upside down on the ground, loosen the particular frame with the right. If one end of the frame is moved backward and forward and upward when the left hand returns to the other end, it will be ready to be immediately raised out of the hive. While it is coming up, search the side toward you. When the bottom-bar has cleared the other frames and hive, you should be ready for the other side by moving the right hand inward toward you, and the left hand far out, causing the comb to move as if the frame were on a pivot in the center of the bottom-bar. This gives a slanting view of that side, which is always the best view; do not stop the comb to look it over, but glance at it while it is given to the right or left hand, and is being set on end in front of the entrance, or against the farther side of the hive.

While one hand disposes of this frame, the other goes to loosen another. In clipping I hold the frame by one projecting arm in the left hand, and rest the opposite corner on some part of the hive or on my knee to keep it steady. One-half of the queens I clip never know any thing has happened, and I take off the most of the gauze of one outside wing. When I work facing the sun I lean forward and examine the farther side of the comb first, which will be toward the sun, as it is lifted out.

In a description the operation appears as if

there were several separate movements; but in practice they are all combined or continued as one move, as neither hand comes to a standstill anywhere, and each is engaged in a different manipulation.

C. W. DAYTON.

Pasadena, Cal., June 10.

GETTING RID OF LAYING WORKERS "PULLED QUEENS," ETC.

DR. C. C. MILLER TELLS US HOW TO AVOID THE
TROUBLE TO A GREAT EXTENT.

A correspondent relates to me his tribulations with fertile workers, in which the troublesome pests came out ahead. He first gave them a ride on a wheelbarrow, and dumped them on the ground 20 rods away from the apiary, hoping the bees would desert the laying workers and come back to the old stand, on which he had placed a new hive containing frames of brood. But they didn't return. They just lay on the ground in a pile till nearly dark. I suspect that, if they had been left long enough, they might have returned; and I further suspect that the only effect of their rough ride on the wheelbarrow was to make them lie there on the ground longer than they otherwise would have done.

Toward dark he put the hive by them; they ran in, and he placed them on a new stand. Next day most of them returned to the old stand—pretty clear proof that if he had left them on the ground, they would have gone back to the old stand. Then he introduced a laying queen by the candy plan. The bees ate the candy and killed the queen in the cage. A virgin queen introduced the same way probably met a similar fate, as she could not afterward be found.

He now wants to know about the plan of giving them a pulled queen, and asks how old a queen-cell must be when the queen is ready to pull out, and how to tell by the looks of the cell when it is old enough, providing he knows nothing as to when it was started.

It is well known that a queen just hatched will be kindly received almost anywhere, although if a laying queen is present the young queen may be killed as she becomes older. If, however, instead of a laying queen being present, there are laying workers, I think the bees transfer their affections from the laying workers to the young queen. Instead of taking a queen that has just hatched, it seems to work equally well to use a queen that is just ready to hatch, or perhaps 24 hours in advance of the time when it would emerge of its own accord. How to tell by the looks of the cell when the queen is ready to pull is something beyond me. I can tell about it only after I have pulled her; and as that is usually at a time in the year when queen-cells are very plentiful, it matters little if a number are pulled open only to find the young queens too immature to use. Yet a very soft, white-looking queen may be used, if she is only mature enough to crawl about. If you're not sure about it, it will do no harm to put in two or three.

Queen-cells are not plentiful in the spring, and I don't believe I would fool with bees having fertile workers at that time of the year trying to save them. There are plenty of colonies that are short enough of bees to be benefited by having additional bees given them. So I would divide the bees around among colonies needing them, giving one or two frames to each. If given at a time when blossoms are yielding, there is not likely to be any fighting. But these bees are not likely to be of any very great

value, because so old. If the whole colony were united with a weaker colony having a queen, the queen might be killed. C. C. MILLER.
Marengo, Ill.

WINTERING.

AN UNSOLVED PROBLEM.

GLEANINGS for June 1st is just received, and I read with much interest the article on cellar wintering, by friend Taylor. I consider this the most important subject connected with the business of honey production, especially in this northern latitude. With this problem once solved the production of honey would be placed on a solid basis. If I could only winter my bees successfully every winter I would ask for no better business than raising honey, even in Iowa; but I must confess I have had to buy bees several times to keep up my stock. This is not as it should be; and as I have a love for the business, and am depending on the production of honey for bread and butter, I am very much interested in the wintering problem. I have had several years' experience in cellar wintering, and last winter I had bees in three different cellars. In cellar No. 1, which is a cave on the Doolittle plan, I put 62 stands. About half had sealed covers, with bottoms removed *à la* Boardman. Half of the rest had top ventilation by slightly raising the cover, and fast bottoms, and the rest had queen-excluders on top, covered with cotton cloth, cover removed, and fast bottom. All wintered equally well so far as I could see. I lost two by starvation; put them in house-apiary Mar. 15, since which I have lost 15 more from the failure of queens; and I am convinced that many of the spring losses are caused by old or worthless queens.

In cellar No. 2, which is my home cellar, I had 11 stands, part with sealed covers and no bottom, and part with nothing but queen-excluding honey-boards on top; all wintered perfectly; commenced rearing brood in December. I examined them several times, and all are strong to-day except one which lost its queen. This cellar was very warm.

Cellar No. 3 is cemented on the bottom; studded, and plastered sides and overhead, and contained 30 stands, 21 of which had two or three thicknesses of burlap and carpet, daubed with bee-glue, and a heavy chaff cushion in the super, cover removed. These all wintered perfectly, and are strong to-day except one which was robbed, and two which had poor queens, and are weak. The other nine had slatted honey-boards on the cover, with three or four thicknesses of cotton cloth, new, without any propolis, and cover removed. Five of these died, and two are now weak for this time of year. This cellar was very cold, and I am sorry I did not use a thermometer.

Fifty colonies were wintered in ten-frame chaff hives, with several thicknesses of heavy cloths covered with propolis, and a heavy chaff cushion or loose chaff on top, and sticks laid across the center of the frames to form a passage over the tops of frames in severe weather; and I consider this important. Of these, 47 are alive and in good condition; and permit me to say that these chaff hives have wintered successfully in this same yard for 12 years.

The above, as well as my former experience, proves to me that there can be no fixed rules for cellar wintering. We must be governed by the conditions of the cellar. A system that is a success in one cellar might be a total failure in another.

J. E. HAND.

Eldora, Iowa, June 3.

MUSHROOMS.

AN INTERESTING ACCOUNT CONCERNING THEM,
TRANSLATED BY BALDENSBERGER.

Mr. Root:—On page 314, April 15, Mr. Grain-ger and you discuss mushroom culture; and right here it would interest you, and probably many friends interested in that industry, or in gardening, to read that ants have been discovered that really grow mushrooms. I find in a German newspaper the following, which I translate. It is headed—

ANTS AS MUSHROOM-GROWERS.

Many naturalists, who have traveled through tropical South America, have recorded the curious habits of leaf-cutter ants, or carrier-ants. These little creatures attack by myriads trees and bushes, and cut with their mandibles round pieces of the leaves, and may be seen in long files, carrying these bits toward their nests, passing, by self-made paths, leaves, branches, and sometimes even passing over natural bridges to cross the water. Till recently it was not known what the ants did with these morsels of leaves, some of them weighing nine or ten times as much as the bearer. Some believed that they used them as food directly. Some naturalists believed they were used in lining their underground nests; but against this last supposition facts spoke, for the leaves were never found in the nests, no matter what quantity they carried home. Thomas Belt conjectured, in his famous book, "The Naturalist in Nicaragua," that those leaves were used as manure in the cultivation of a small mushroom on which they live; consequently these ants are mushroom-growers. Belt was a very keen observer, but his conjectures met with many doubts, and he himself calls them "extraordinary and unexpected." A German, Dr. Alfred Möller, sent to Brazil by the Berlin Academy, to study mushrooms, finally solved the difficulty. In the 6th number of Prof. Schimper's Botanical Communications from the Tropics it appears that Mr. Belt's conjectures were altogether true. The results of these observations are as follows:

The nests of the training-ants (*Atta*) are mostly built in natural hollows under the surface of the ground, which are probably enlarged by the ants. If such hollows are not covered by old logs or stones, the ants cover them with a thick pile of leaves and bits of branches. *Atta coronata* hollows out its lodgings in hard clay soil, while *Atta hystrix* and *Atta coronata* prefer to live in forests. A third kind, *Atta dis-cigera*, prefers the neighborhood of man. Thus, Dr. Möller found a nest beneath the stone stairs of the house which he occupied, near his renowned old uncle, Dr. Fr. Müller, in Blumenau (station Catarina), and found it was impossible to dislodge the ants without breaking up the stairs. But in whatever position they have their nests, in all of them is found a loose, soft, gray mass, like a big sponge, with different-sized excavations, in which ants are always found, as well as eggs, larvæ, and pupæ, strewn about. Möller calls this mass the mushroom-garden—the term used by the American naturalist McCook. This substance is composed of many small plots of yellowish-brown to black in color, held together, as observed under the microscope, by white fungus threads; also, by the microscope, the particles of the leaves are seen in these plots. On the surface of this mushroom-garden can be seen numerous white points, which, seen under the microscope, are recognized as many fungus-thread ends coupled together. Möller calls these points "kohlrabi heaplets" (kohlrabihaufchen), and says they are the principal or only food of the ants. They

are very careful about their mushroom-gardens; and if a piece of it is taken out by ants, larvæ, or pupæ, and put beside the nest, the ants immediately carry back their brood and pick up every particle of the garden which may have fallen off in taking it out. Möller also confirms Belt's account, that the ants take with them every bit when changing their domiciles.

In order to observe their ways, Möller kept these ants in confinement. He found that they died of hunger, without their garden, after eight to fourteen days, even if they have such leaves as they seem to prefer; but if a piece of their garden is brought with them, and put under a glass cover, they first begin repairing the garden, and carry away every bit of uncleanness from it.

In less than 12 hours the work is done, and from time to time the ants carry out such particles as are sucked up by the mushrooms, and produce no more; and if there is no new stuff the garden withers by degrees, and the ants die after eight to fourteen days. Möller could well observe how lavishly the ants devoured their vegetables. The ant seizes such a "heaplet" in its jaws and plucks it out; then turns it round and round by the help of its fore feet, while the antennæ continually touch the food. The ant sucks, sips, and pulls the kohlrabi till all gradually disappears in its mouth.

To form the above-named pellets, the ant cuts a morsel of leaf, and chews and kneads with jaws and feet till a small white ball is formed, which is then adapted to some place in the building. Möller found that particles of leaves built in in the morning were already drawn through by fungus threads in the afternoon of the same day. It is very remarkable that no other mushrooms grow in those nests. In bringing in the leaves, all kinds of fungus threads must be imported, especially the common mold form, where they can thrive best. But he never found any but that one kind, of kohlrabi heaplets, which he took and cultivated apart. He got only pure kinds, and no bacteria appeared. This wonderful cleanliness is attributable only to continual feeding. Such a garden, rid of ants, is soon covered with fungus threads; 24 hours after beginning, these fungus threads grow up in the kohlrabi heaplets, which soon lose the protoplasm they contain, and wither. The ants have, therefore, the greatest interest in preventing those air-threads; and this is another work which falls to the task of those little creatures. If only a few ants are left on such a garden, it may be observed with what efforts they keep back the air-threads coming up. If too few ants, some air-threads gain footing here and there, and by and by the ants are obliged to retreat before the ever advancing fungus forest, which advances with such rapidity that the poor haunted ants, notwithstanding their untiring efforts to keep it down, are obliged to flee from their own work.

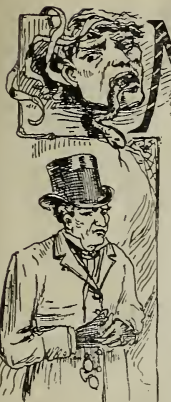
The close study of this mushroom, where several neuter forms (*Conidia*) appear, showed that all nests of the *Atta* species contained the same. It is a leaf-fungus, seldom showing the caplike body into which the higher kinds develop, and have been termed, provisionally, by the discoverer, *Rozites gongylophora*.

Besides the leaf-cutter ants, Möller says other ants also make gardens—the hair-ants (*Apterostigma*) and the hunchback-ants (*Cyphomyrma*) for example. These ants do not take leaves for their use, but decayed wood. Each kind of fungus differs from that of the leaf-cutter ants, and are not accepted by them as food. [Signed]

The caplike body is botanically termed the "pileus."
J. MEWES.
PH. J. BALDENSBERGER.
Nice, France.

JAKE SMITH'S LETTER.

THE MEETIN'.



"He doant preach Bible sermons. He brings politicks into the pulpit."

MR A. I. Gleanings—*dear Sir*:—Since I rote yu last, things has cum to a climax into our meeting house. A church court cum and sot onto the case, and sok away our preacher, and made the church pay him \$200 extra. He preached a fairwell sermon that was fool of lovin kindness, tellin us to be good to the next preacher we got, and prayed for grate blessins onto the church. He's a good man if ever they was 1. Lots of them cride at the thot of givin up him and Missus Bond.

In a few days we had a bizness meetin, and Welder eggzorted evry buddy to stand shoalder to shoalder and work for the good of the church, and he seemed to be in wonder-fool good yumer. When I got a chants to say sumthin I got up and spoke, and sez I:

"Ime rite glad to see sitch a spirit of loyalty to the church. I wish they was more of it. I wish it was a little more reglar. I beleave in bein loyal to the church all the year round, whether it's a preacher I like or not. When I joined the church I diddent join no preacher, but I joined the church, and I doant beleave in stayin away from meetin or prayer-meetin jist becaws I doant like the preacher. I doant cum to prayer-meetin to pray to the preacher, but to the Lord; and I beleave we need to pray to the

word agin him. And if bruther Welder had counted up the number of pocket hankachers peapel was a cryin into when Mr. Bond preached the fairwell sermon he wood hardly think that evry buddy was agin him excep me and a fue under my influents.

"I beleave in standin shoalder to shoalder," sez I, "but if thade a bin a little more of the shoalder-to-shoalder bizness when this trubble 1st begun it wood a bin a good thing. And I beleave in peas and harmunny too, but I doant beleave in hearin peapel tock about peas and harmunny, and all the time thare a goin around a sturrin up strife.

"And now," sez I, "I spose in the Lord's oan good time heal send us another preacher. Mebby heal be as good as the last, and mebby he woont. But whatever he may be, I propose to stand by him jist as long as he's my paster. And I want all the members to do the same. Doant let nobuddy cum around a tockin agin him to you. Why, if the angle Gaberell himself was our preacher, and sumbuddy went a sneakin around a whisperin to this 1 and that 1 that sum was dissatisfide with Gaberell, and for the sake of peas we must give him up, it woodent be no time till half the weak-headed fools wood see sum failins into Gaberell, and sum with weak backbones wood think we must giv him up for the sake of havin peas. I doant beleave in sitch a unpeasable sort of peas. And I doant beleave in givin up to the rong for the sake of peas. It haint to be all peas into this life. We offen sing, shure I must fite if I wood rain. And now all I've got to say is this—stand shoalder to shoalder, and the way to stand shoalder to shoalder is to stand by your preacher, in peas if you can; but if you have to fite for it, still stand by your preacher; threw thick and thin. stand by your preacher."

JAKE SMITH.

The End.

QUESTIONS ANSWERED.

HOW TO PUT FOUNDATION IN BROOD-FRAMES; HEDDON'S SHORT WAY OF TRANSFERRING.

Order 20,957 came in good condition, and I am perfectly satisfied, especially with the foundation, which was much better than the sample. The Hoffman frame is a daisy; but don't you think the foundation could be fastened easier if a groove were cut in the place of the comb-guide, large enough to receive the edge of the foundation? then take a small brush and apply a little wax to hold it firmly in place. This brings the foundation exactly in the center.

I have transferred a swarm of bees by Heddon's method. Two-thirds of the bees are in a new Dovetailed hive, and the rest are in the box hive. Now, at the end of 21 days I should like to drum them out and put them into a new hive—not the same hive that the other bees are in, thus making two distinct colonies of the bees which were in the old box hive. Can this be done? Will not the bees that are left in the box hive rear a queen after 16 days?

Is there any objection to painting hives white?

Should the remaining third of the bees left in the box hive be left any longer than 21 days in making two swarms of them? P. R.

[As we have received a good many inquiries of late, of a character similar to the above, we have decided to answer them all through



THE MEETING

Lord jist as mutch if we hav a preacher we doant like, and mebby more. Yes, I like loyalty to the church. And it mite a bin a good thing if bruther Welder had thot a little more about loyalty a yeer ago. I cant say I like the kind of loyalty he had then. I cant say I like that kind of loyalty that goes around tryin to turn peapel agin the preacher. And sitch a preacher! They haint a sole here that dast say a

I WILL TAKE
HEED THAT
I SIN NOT WITH
MY TONGUE

GLEANINGS. Referring to the first question of our correspondent, as to whether it would be easier to put the foundation in a groove than by the way recommended in our catalogue, we say no; decidedly no. There is not the least difficulty at all in fixing the foundation to the top-bar with the Hambaugh or Daisy foundation fastener.

As to the second question, we would say that two colonies can be made, when preferred by the Heddon short way of transferring. Yes, the bees will be likely to raise another queen in the box hive; but she can be either killed when drumming out, or allowed to supersede the old queen if she can.

White is the best color to paint hives. We formerly recommended, and have used, up to quite recently, a straw-color paint made of white lead and yellow ochre; but we find that even the slightest shade of dark draws quite perceptibly more heat from the sun. During these very hot days we observe that the covers painted white feel very comfortable to the hand. Others, of a light straw color, are decidedly hot to the hand. We now recommend a first coat of pure white lead. Do not let anybody delude you by saying that pure lead is too expensive, and that cheaper paints will do just as well for a primer. We find that pure lead, even at more than twice the price of the cheap stuff, is cheaper, because it goes more than twice as far as paint made up of barytes, lime, chalk, and different earthy matters. For a second coat we would recommend putting in a little pure zinc—say about 33 per cent. This prevents the white lead from chalking, and really makes it more durable.

As to the last question, we may say that bees may be left longer than 21 days in the box hive, if desired; but nothing would be gained, and something would be lost during the honey-flow, because the bees will be filling up these old crooked good-for-nothing combs.]

THE GOVERNMENT AND THE LIQUOR-BUSINESS.

A FEW STARTLING TRUTHS THAT PERSIST IN STARING US IN THE FACE IN SPITE OF US.

Friend Root:—May I be allowed a few words of comment on the article on page 446 of **GLEANINGS** for June 1st, from Mr. Julius Tomlinson? His argument, in brief, as I understand it, is this: Since the appetite for strong drink is a natural craving, which always has existed and always will exist, and since it can not be eradicated, the means of gratifying it should be restricted as much as may be by taxation and other ways; therefore the government, needing revenue in order to its maintenance, has a perfect right to tax the liquor-traffic and to collect that tax by any means in its power.

Let me apply this line of argument to two other evils, and see if we can not prove its weakness:

Harlotry has existed from time immemorial, and, so far as we are able to judge, it always will exist. We can not eradicate the propensity from which it springs, therefore let us regulate it by taxation. It would be a very easy thing for the government to derive a great and constant revenue from this source; but would friend Tomlinson think it wise for our government to pass laws permitting houses of prostitution to exist for a price?

The gambling propensity is probably as old as Adam. To gain riches without effort, men have always been willing to take desperate chances. The gambling propensity is inherent

in human nature, and probably never can be eradicated; why not, then, place it under the supervision of the State, and make it a source of revenue. We have the Louisiana Lottery as an example of how easy a thing it would be for the government to derive a great and easily collectable revenue from the vice of gambling.

For nearly 25 years the State of Louisiana, though her legislators, gave this lottery the right to exist and ply its nefarious business, to the shame of the State and the degradation of the people; and when lately it became necessary to renew its charter it sought to bribe the consciences of the people by an offer of a million and a quarter dollars a year for a new 25-year charter.

We all remember what a storm of indignation arose from one end of the country to the other against those who favored the lottery; how press and pulpit teemed with denunciation of the sin of state partnership with this iniquity. Now, there is not one scintilla of argument more, from a moral point of view, for governmental complicity with the liquor-traffic than there is for governmental complicity with bawdy houses and gambling-hells.

It is because the liquor-traffic is so all-pervading; because it has become so entwined with and so intimately related to our business, our politics, our social habits and customs, that the moral sense of the great majority of the people seems to have lost the clear discernment when the liquor-traffic is under discussion, that they bring to bear on kindred evils; hence all sorts of compromise and half-way measures have been advocated to do away with the evils of the liquor-traffic. But in spite of them all, that traffic has grown and flourished and strengthened itself on every hand, thus illustrating the truth of the saying, that a compromise with evil is a victory for the Devil.

Now let me tell your readers a bit of news, for news it will be to the great majority of them, and it goes to the very marrow of this whole matter:

At every session of our Congress for 20 years, a bill has been presented, known as the "Commission of Enquiry Bill," the purport of which, in brief, is that a commission be appointed and authorized by Congress, to investigate the liquor-traffic and its effects.

This would seem to be a legitimate subject for inquiry, because our Congressmen are supposed to be sent to Washington to legislate in the interests of the people; and we have it on the authority of medical men, keepers of insane and pauper institutions, prison officials, and students of political economy and finance, that the liquor-traffic, as Gladstone puts it, "is worse than war, famine, and pestilence combined." Yet our Solons in Washington vote down or smother in committee every effort to secure an official inquiry into this great iniquity; and it makes no difference which party is in power, the result is always the same.

It has been an easy matter during these years to secure official inquiries into the causes of cholera in hogs, and the grasshopper pest of the Western plains; but a resolution to secure an inquiry into a traffic which debauches and degrades the manhood of the nation, fills our prisons with criminals, our poorhouses with paupers, and our asylums with the idiotic and insane,—which annually sends to drunkards' graves 70,000 of our fellow-citizens, and entails an annual loss on the country of \$2,000,000,000, this is not to be considered at all. Why? Simply because the party which would take the responsibility of passing such a resolution would be hurled from power at the next election by the powerful political influence of the liquor-traffic. "Save the party," says the politician, and let the hydra-headed monster—the

saloon—bring poverty, distress, death, and woe to the people; and nearly 4,000,000 Christian men by their votes say amen!

Hudson, N. Y., June 12. JAMES MCNEILL.

ANOTHER REPLY TO FRIEND TOMLINSON.

Mr. Root:—After reading the article of J. Tomlinson, and your comment on the same, I was led to exclaim, "Friend Root must be thankful for small favors when he feels like praising God for such a weak attempt to justify the government in its partnership with the liquor-business." Mr. T. says, "It is a very serious thing to impute evil intent to the government." Very true; but the matter becomes doubly serious when the imputation is sustained by facts. But I will leave each one to draw his own conclusions as to the intent, and will deal simply with the facts.

I understand that a partnership exists where two or more parties are interested in a business in a way that each party has a share in the profits of the business. Now, what are the facts? The government permits and legalizes the manufacture of the poison, and for its share in the profits receives 90 cents per gallon, and the other partner has the rest, and yet there is no partnership! Oh, no! can't be, because this is a "Christian government;" and yet it legalizes, protects, upholds, and defends this accursed liquor traffic. Friend T. says, "Very many men are born into the world with a propensity to evil ways, and the drink habit is one of the strongest of these propensities." So are murder, theft, and prostitution some of these propensities. "This thirst for strong drink creates a demand for it." So does the desire for the gratification of these other desires create a demand for them. Again, he says, "So long as this demand exists, the manufacture will go on. It can not be stopped." So long as the demand for the gratification of the propensity to steal, murder, etc., exists, the business will go on. It never has been stopped, and it never will be so long as the desire for these things continues. And now let the government grant a license to all murderers, thieves, and criminals of every grade; in short, go into partnership in the business, and receive in return a share of the profits. If not, why not? He says there is no mortgage on the boys. Let friend T. go into the saloon and attempt to remonstrate with the keeper in regard to his business, and see how soon his attention will be called to the mortgage (license) hanging up in his place of business, bearing the seal of (the other partner) the government.

True, as Mr. T. says, many are born with an appetite for strong drink; but the number sinks into insignificance compared with those who acquire the habit at the legalized breathing-holes of perdition, and the number would be still less were it not for the fact that the ancestors of those who were thus born had acquired the appetite by indulgence in the social glass at these places where thousands of our boys are acquiring it to-day, to be transmitted to their children yet unborn. In the way of a remedy for the drink-evil, our friend speaks of "laws to tax and hamper the liquor-interest;" "the rules of business interests;" "the efforts of temperance societies," etc. Now, does not our friend T. know that all these things, and even the gospel mentioned, have been in operation years and years, and what has been the result? A steady, constant, and aggressive growth of the business, until to-day there is more liquor consumed per capita in the United States than at any other period of its history.

In proof I will give a few figures from government statistics: In 1840 the total of distilled spirits, wines, and malt liquors consumed was 17,244,823 gallons, or 4.17 gallons per capita. In 1880 it was 506,079,400 gallons, or 10.08 gallons per capita. In 1890 it was 976,272,770 gallons, or 15.49 per capita; and this under the full force of our friend's suggested remedies. Will Bro. T. now (in view of these facts) tell us how long this condition of things will have to continue in order to accomplish the desired end? The remedy that I would suggest would be this. Let the government withdraw from the partnership, and pass a law prohibiting the manufacture, exportation, importation, transportation, and sale of all intoxicating beverages. Then let the temperance people withdraw their support from license parties, and unite in putting a party in power that wants the law enforced, and stop voting with saloon-keepers for the perpetuation of the business. Then invoke the divine blessing on their efforts. Then there would be fewer children born with appetites for drink, and fewer appetites formed after they are born; and the law would be as well enforced as any other criminal law.

Now, I will just say, in conclusion, let us each try to act consistently; talk right, and vote right; do our duty, and trust God for the results.

W. S. G. MASON.

Morenci, Mich.

ANSWERS TO QUESTIONS

FROM BEGINNERS.

M. S. W. asks if he can Italianize easily at swarming time by putting drone-traps over the entrances of colonies having impure drones. *Ans.*—Yes.

W. C. D., of Connecticut, desires to know whether sawdust would answer just as well for packing double-walled hives as chaff. *Ans.*—Sawdust will do just as well, we think, so far as protection is concerned. The only objection to its use is that it is heavier than chaff.

G. A. C., of Tennessee, wants to know how to move a swarm of bees that has clustered on the trunk of a tree. *Ans.*—Blow a little smoke on them to cause them to be a little more peaceable, and then with a brush or handful of heavy weeds brush the bees into a large tin pan. The brushing should be accompanied with a few whiffs of smoke, otherwise the bees may be angered.

H. C., of North Carolina, referring to our A B C book, and the sure way mentioned therein of introducing valuable queens by giving said queens to hatching brood, wants to know how long the hive should be kept closed up. *Ans.*—If brood is hatching readily, there will be young bees enough to care for the queen in a few hours. But the hives should not be closed air-tight. A wire screen should be placed over the entrance so as to allow of a little ventilation. In two or three days the young bees will be old enough to defend the entrance.

W. U. R., of Florida, asks us what we prefer for shading bees. Trees or a shed? *Ans.*—In hot climates, especially in Jamaica, long low sheds are used. In the North, we prefer trees. But experience has proven that bees that have direct sunshine during the early part of the spring, in the North build up quicker than when under some sort of shade. As a general thing, on account of the very hot weather that is usual in most of the Northern States, we prefer to have the bees in the shade. They are

less liable to lie out at the entrance, and loaf; and it is more comfortable to the apiarist to work in the shade.

J. M. G., of Pennsylvania, says he has one of our eight-frame hives, but does not know what the division-board is for. *Ans.*—With spaced (or, rather, self-spacing) frames, it is best to have a division-board so the frames can be removed without rolling over and killing bees. After removing the division-board, space over, from the middle, three or four frames close up to the hive. This can be done at one operation providing that Hoffman frames are used; you will then have plenty of room to pull out the frame you desire to examine. The division-board is also a convenience in reducing the hive capacity when the colony occupies less than the regulation eight frames.

J. M. S., of Indiana, wants to know what is a good remedy to keep ants from hives. *Ans.*—Find the nest if possible, and pour about half a pint of coal oil on it. A better way (according to Prof. Cook) is to buy an ounce or two of bisulphide of carbon at the drugstore. With a crowbar make a hole right in the center of the nest. Pour in the bisulphide, and close the hole by tamping around the edges. That will be the end of those ants. Ants do no particular harm in the hives here in the North, although they do considerable mischief in the South. As we have not had any experience in treating the "varmints" in that portion of our country, we will leave it to some of our subscribers there to tell how they get rid of them.

S. P., of Florida, wants to know how to keep extracted honey from candying. *Ans.*—The only way we know of is to let it get thoroughly ripened in the hive—that is, evaporated down so it will be thick. Such honey, without any further treatment, will sometimes keep all winter without candying. As a rule, however, it is necessary to heat the honey over hot water to about 150°, and then seal it, while hot, in bottles or tin cans. But there is no method that is infallible. If possible the heating should be avoided, as some think that a little bit of the delicate aroma is lost. The Californians allow the honey to evaporate in large shallow vats until it becomes thick. Such honey will keep for a long time without candying.

J. E. L., of Virginia, says he has a colony of bees in a patent hive, and they will not swarm, although they cluster out at the entrance. *Ans.*—Bee-keepers have for years been racking their brains for a system or hive that would prevent swarming, or a strain of bees that have no desire to swarm. Better get a patent on the bees, and sell the daughters of the queen. If the bees cluster out at the entrance, possibly there is a lack of shade or a lack of room. Plenty of room, good big entrances, and shade, will usually cause the bees to go inside. Give them a super of empty sections, one of said sections being filled with partly drawn-out comb and honey. If extracted honey is the object, place an upper story on, with a frame of brood above, and empty frames on each side.

J. S. L., of New York, wants to know how to make vinegar of honey. *Ans.*—It takes two pounds of honey to make a gallon of vinegar, and from one to two years' time. Use, as a general thing, only refuse honey—such as can not be used for any other purpose. Put water enough into the honey so it will just float an egg, and allow the sweetened product to stand in a barrel with one head out, under shelter. Cover the barrel with a piece of cheese-cloth, to keep out the dirt and flies. This sweetened water will soon begin to "work," and occasionally the scum should be taken off with a skimmer

until nothing rises. It will take anywhere from a year to two years to make good vinegar. But honey vinegar is not profitable unless old refuse is used—such as can not be sold for any other purpose.

C. C. M., of Ohio, asks what time of the year is best, and what condition the bees should be in, to produce all worker cells from wired foundation in brood-frames. *Ans.*—At any time of the year, and under all conditions, so far as we know, you can secure worker comb from worker foundation. During the height of the honey-flow, with only starters of foundation, the bees are apt to build drone comb, because they can make this quicker, and thus sooner have a receptacle in which to store their hard earnings. Drone comb may result from worker foundation, providing said foundation is adulterated with paraffine or ceresin wax. But we believe that there are no foundation-makers in this country who make use of any thing but pure beeswax. Nothing else seems to answer, for other things have been tried. *C. C. M.* asks further what a "pulled" queen is. We will let the other "C. C. M." of Illinois, answer this question. It was he who originated the term and practice.

W. H. J., of Ontario, asks how we ship comb honey. *Ans.*—We follow no invariable method. While we ship in 12, 24, and 48 pound cases, we prefer the 24-lb. single tier. If we have half a dozen or so of cases to ship at once we crate them up in such a way as to leave convenient handles at each end of the crate. On the bottom slats of the crate is piled straw deep enough to make a sort of cushion between the crates and said slats. The handles at each end of the crate tend greatly to insure careful treatment. As another precaution the cases are crated up so the glass shows on the outside. If freight-handlers see that the crate contains something easily broken they will be more apt to handle with care. In shipping honey by the carload we recommend strewing considerable straw on the floor of the box car. The cases can then be piled up with spaces in between, so that the separate combs are parallel to the rails. Be sure not to put them in the car the other way. We omitted to mention above, that, in small shipments, we put on a caution label, printed in red letters, with a finger on one end. The directions below this are to load with the finger pointing toward the locomotive.

W. E. D., of West Virginia, wants to know if it is a good plan for a beginner to open his hives every day or two to examine the brood-comb. *Ans.*—An enthusiast will probably do this whether it is advisable or not. It might and it might not do harm. During a honey-flow, however, we would not disturb them unnecessarily. Every little interruption prevents just so many tiny drops of honey from coming in in the regular way. *W. E. D.* also asks what to do when all the brood-combs get full of honey in the midst of a full flow of honey, so that the bees make combs all over the tops of the frame, even when they have section boxes in the super. *Ans.*—If the flow of honey continues, the bees ought to go above; but sometimes they get quite content with what is already stored in the brood-nest, and then you must set them at work in some way if possible. If you have other colonies that are started in sections, remove two sections with comb partly drawn out, and filled with honey, from one of the supers where the bees are working, and place it in the super where the bees seem disinclined to go. Give the bees plenty of shade; and if they then fail to go above, we should be tempted to clip the queen's head, and introduce one of a strain whose bees go into sections readily.

HEADS OF GRAIN FROM DIFFERENT FIELDS.

CRIMSON CLOVER FOR HONEY, ETC.

Honey is almost dropping from locust this season, and white clover is plentiful. I think so much of crimson clover that I should say it is worth untold millions to this country, for turning under; and I now find that my bees are swarming upon it. It has been in bloom 20 days.

ARTHUR T. GOLDSBOROUGH.
Washington, D. C., May 30.

HONEY FROM FIGS.

I have been told that the fruit of the fig-tree is used by the honey-bee in producing honey. I should be glad if you would give me a word of information in regard to it. Figs of every kind grow readily in this climate. If the skin of the fruit were broken, and the bees would make honey from the fruit, it appears to me that it would be profitable to plant an orchard of fig-trees. I have a few colonies of bees, but no figs.

SARA THACKER.

Applegate, Cal., June 12.

[Bees would make a sort of fig syrup, but we question after all whether it could be called honey.]

A GOOD WAY TO STRENGTHEN WEAK COLONIES, AND PREVENT SWARMS.

I think I have a better way to strengthen weak colonies than Dr. Miller's way of doubling them up. Find the strongest colony, and carry the weak one to it: set the strongest one off its stand: place the weak one on it and the strong on top of the weak one. You build up the weak one, stop the swarming mania, and convert it into a mania for honey-gathering. No patents. Try it. I have often, and it has never failed. The change should be made when the bees are busy gathering honey.

Tucson, Ariz., June 8. P. PLUMMER.

[This, no doubt, would strengthen the weak colony, and possibly prevent swarming, though we should not be sure of it.]

DO BEES SPOIL FLOWERS?

Mr. Root:—Mr. Schmalhausen, professor of botany in the University of Kiev, told me that bees eat (spoil) flowers. Please give your opinion.

Kiev, Russia, April 28. ALEXIS IKONNIKOFF.

[Friend I., I think your professor must be mistaken, or else the flowers of Russia are very different from those of the rest of the world. Instead of injuring the flowers it is quite the contrary. Many flowers could not exist were it not for the assistance the bees give them in the way of fertilization, and I have never before heard such a remark from any professor or any other man of intelligence. Some ignorant people have from time to time conjectured that the fruit would not be as sweet if the bees were to take all the honey out of the blossoms. Prof. Cook and others have, however, repeatedly disproved this fallacy.]

TWO LAYING QUEENS FIGHTING.

Dr. Miller, in *Stray Straws*, on page 425, says that he never saw two laying queens show fight. I have, and to the death too. Last year I was requeening my apiary, and, while catching out the old queens, I put two under a glass tumbler to see what they would do. In a few minutes, and after their scare was over, they

engaged in deadly conflict, and one killed the other. One seemed to be much more vicious than the other, and it was she that was victor. Both fought, however.

H. F. COLEMAN.
Sneedville, Tenn., June 7.

HOW TO HAVE THE QUEENS FERTILIZED BY ITALIAN DRONES.

I have two swarms of Italian bees (from queens bought of you last year), and seven colonies of blacks. I wish to Italianize the seven. Now, let us suppose that I follow out your instructions in the A B C book concerning queen-rearing and introducing. We will next suppose that the virgin queens are almost ready to start out on their wedding-tour. I place the bee-guards at the entrance of the seven hives containing black bees, and thereby keep drones in that they may have no chance to meet the virgin Italian queen. Would it be most likely to occur that the Italian drones would meet the young queens from the seven hives? Remember there are but two swarms of the Italians.

Ranger, N. C.

C. F. WALKER.

[The queens would probably be fertilized by the Italian drones provided the perforated zinc did not exclude the queens. Some zinc is made to exclude drones but not queens.]

AUSTRALIA'S HONEY-EXHIBIT AT THE WORLD'S FAIR.

You will, perhaps, be glad to hear that our small exhibit for the World's Fair has been shipped to Chicago. It consists of 126 2-lb. jars, and, after the exposition, it will be on permanent exhibition in your Department of Agriculture at Washington, D. C. When you get to the show (as, of course, you must do, being a patriotic American), I should be very glad if you will seek out our exhibit and give us a critical opinion on the quality, etc., in GLEANINGS. You will notice each jar has the same general-idea label; but every lot of six has on that label a distinguishing number. These refer to individual exhibitors, each man being limited to six jars for sample. We should very much like your opinion as to which of the samples of six out of the 126 jars you consider the best, and why, as well as the general expression on the whole exhibit.

R. PATTEN.

Bolevarra, West Maitland, N. S. W., April 28.

[When we go we shall take particular pains to look up your exhibit. Thanks.]

MORE ABOUT THE PYRAMIDS.

On page 363, May 1, you tell about the pyramids. The building is a good deal more irregular—I mean the steps. They don't look like steps when you are near them, but more like a great stone-pile, as you say. The spaces between one row and the other were originally filled out with plaster and cement and alabaster stones, carried off to Cairo by Mahomet Ali to build the beautiful mosque on the citadel. Behind the pyramid of Cheops is the pyramid of Cephrenes, the top of which is still perfectly smooth and unbroken, and from which it can be seen how the others were. Nobody was ever on the top of that one, except the builders, who must have begun the cementing at the top and continued to the base. A good many cubic meters of the covering are gone, owing to the wind and weather, and man's hand. I was more astonished at the immensity of work and time it took to pile together, than by the beauty of the work, at my midnight visit to the interior of the great Cheops pyramid, with its immense blocks of granite across the sepulchral chamber, reported in GLEANINGS in 1890.

PH. J. BALDENSPERGER.

Nice, France, May 1.

DEAD BEES AS A DECOY FOR SMARMS.

An old bee-man gave me a new idea this morning. It is, to take a lot of dead bees, which can always be found, and string them on a thread with a needle, after which they are wound about a pine bough, which is stuck in the ground a few steps from the hive. He says that every swarm that comes out goes straight to the bunch of dead bees, and he has no climbing to do—simply pulls the pine bush from the ground and shakes his bees off in front of his hive. Another friend, who is extremely fond of gardening, has a novel plan for keeping down the weeds in his onion-bed. He has the rows quite close together, and between them places pine poles, then fills in between the poles where the onions grow, with manure, and you just ought to see them grow. The poles answer the double purpose of keeping down weeds and retaining moisture. Wm. E. CUNNINGHAM.

Louisa, Va.

CAN WE HAVE A STANDARD SIZE OF SECTION?

No doubt we can have uniformity in this article; we can at the same time have honest weight, and introduce the metric system. Concerning the latter, we are behind the times; and what good does it do to study this simple international system in school, to be convinced of its simplicity, because of the decimal fractions, and not accept the meter in practice? C. P. Dadant will probably agree with me in this opinion. Dr. Miller says the $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{1}{2}$ section comes near averaging a pound; therefore, to weigh 1 lb. on the average, they must be a little larger. I propose this:

$$\begin{aligned} 4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{3}{4} \text{ in.} &= 1 \text{ lb.} \\ 10.8 \times 10.8 \times 5 \text{ cm.} &= 1 \text{ lb.} \end{aligned}$$

To make this change would, according to Dr. Miller, not require so much alteration in machinery, and be an even number (5 cm.) compared with the confusing fractions as now.

Sometimes it seems to me as if we are much like an old woman over in Switzerland, early in the fifties, when the Latin Money System (1 franc makes 100 centimes) was a new thing in that country. She said the government should have waited with the new money until all the old people had died.

$$\begin{aligned} 4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{3}{4} \text{ in.} &= 1 \text{ lb. scant.} \\ 10.8 \times 10.8 \times 5 \text{ cm.} &= 583.2 \text{ cm}^3 = 1 \text{ lb.} \end{aligned}$$

After a while, to suit the metric weight, 12x 12x4.5 cm.=648cm.=500 grams.

Hamilton, O., May 14. JOHN KERSTEINER.

HOW LONG MAY HONEY BE KEPT?

We clip the following from the *New Smyrna Breeze*, of June 8:

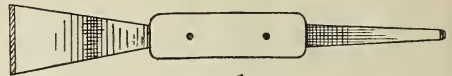
Some men who were digging a well on the place of R. C. Denham, at Live Oak, found, about ten feet below the surface of the ground, a petrified tree. The petrification being only on the outside an inch or two, the trunk was soon split open. In it was found a soft, sticky mass adherent to the sides of the tree; and on tasting this it was found to be honey, which had been shut up in that tree for—it was impossible to say how many years.

If any of our readers who live in the vicinity indicated above, or who know any thing about said vicinity, can tell us whether the above be true, we shall be very glad indeed to hear from them. I am inclined to think it a newspaper canard; yet if the petrification was of such a nature as to seal up completely the honey in the tree, it may be possible. The difficult part to understand is, that petrification is accompanied by water or moisture; and if this water or moisture were to come in contact with the honey it would certainly be decomposed very quickly. Honey sealed up hermetically in a glass jar or tube might keep unimpaired for ages and ages; but if the best honey in the

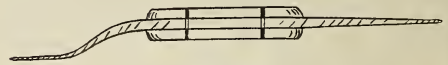
world should come in contact with air and moisture it would hardly keep in a warm room for 24 hours. I know there are many wonderful things in Florida; but truth is strange enough, without going into fiction to get astonishing items for the newspapers.]

CONVENIENT TOOLS FOR THE APIARY.

There is one tool that I have used ever since I have handled bees in sash hives, and that is over 30 years, that I would not do without, and yet I have never seen it used nor spoken of by anybody outside of my circle of acquaintances, and in my out-apiaries. It is what I call an opening-knife, or combination tool. I send you



TOP VIEW



SIDE VIEW.

a rough draft of one. The best length is about 11 inches. I have yet to see a bee-keeper who used one until he got used to it, who would ever do without it. The pointed end, like a screw-driver, is used for prying open and loosening the comb; the other, for paring off wax or propolis. The handle in the middle should be made of bone, or something white or conspicuous, so that it can be seen easily. Make one and give it a trial, and I think you will manufacture and recommend them to your patrons.

Another thing I have looked in vain for in all the reports of moving bees. I have moved, almost yearly, from 5 to 20 miles, and I have never lost a stand or got into trouble on the road by bees escaping. After a good wire bottom-board to insure ventilation, the most important article is *mud*. Have your mud and paddle; and if an old hive does not fit tight, slap on the mud; or if it springs a leak, plaster it over. It will soon dry and effectually close all holes and leaks, and harm nothing. I never start with a load without a bucket of mud.

I wintered on summer stands with chaff on top, separated from the bees by the thickness of a gunny sack, and lost only 3 out of 80, but lost some 20 since in a storm that overturned and destroyed them. During the winter of 1891 I lost over 300 stands from honey-dew. Three-fourths of the bees in this part of Illinois wintered without absorbents on top, and died in mid-winter. JAS. A. SIMPSON.

Alexis, Ill., May 5.

HOW TREGO RAISES CELLS.

[One of the prominent queen-breeders, it seems, has been greatly crowded with orders, and for a time was unable to get cells fast enough. How he finally succeeded is told in a private letter, an extract from which we make.]

I have refused every call for nuclei, as I am very short of bees (for an extensive breeder). I now have 126 nuclei, 11 fair colonies, and four great big booming ones; and the colony that contains my breeding queen, making 142 hives with bees in. I am so rushed for queens that I have not dared to keep a single queen to test, and have sent off every one soon after she began to lay. To keep my nuclei up I have 25 cheap queens (hybrids) that I shift around as

they are needed; and when there is no room for them I cage them for a few days.

The unexpected rush for queens, together with the bees refusing to accept the Doolittle cups, put me a little behind; and as I have but one breeding queen I could do but little at starting cells by the old plan of giving the cell-building colony brood from her; but at last I have hit it. I cut strips of black and hybrid brood, like the Alley plan, and give them to nuclei, and in two days I find a nice lot of cups with the royal food already in them. Then I pick out the "scrub" larvæ and put in some from my breeding queen, and give them to the four big colonies to finish up. I draw on the 11 other colonies for brood to keep the big ones booming.

S. F. TREGO.

Swedona, Ill., June 9.

[As we, too, never succeeded entirely with the artificial Doolittle cups, we have decided to adopt the plan in our yard. We tried it in a limited way when Alley first suggested the plan, and now propose to give it a more thorough test. It is Dr. Miller also who prefers the Alley plan.]

REPORT FROM CHAS. F. MUTH; PROSPECTS FROM CLOVER GOOD; MELILOT NOT TO BE RECOMMENDED.

This is our dullest supply season ever experienced. We sell nothing to compare with former seasons. It seems that the disappointments of the last four years have made our friends very cautious, so that nothing is bought unless it is needed.

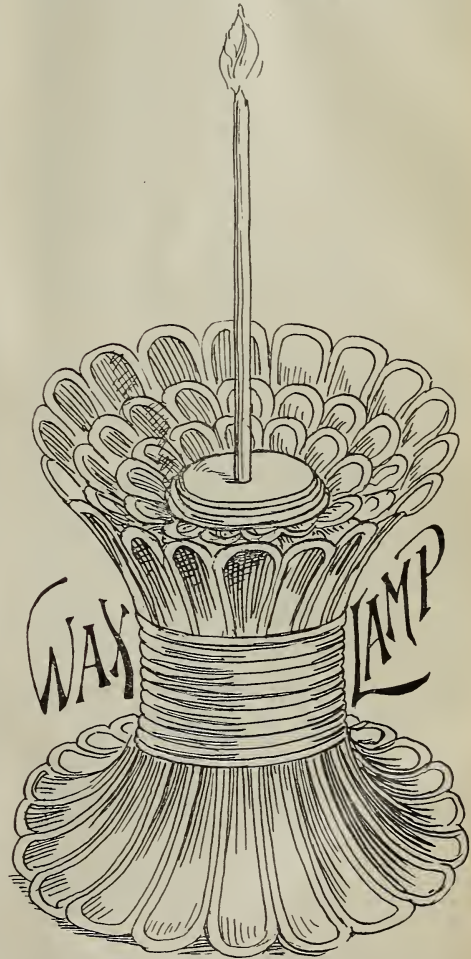
If the growth of white clover all over the commons, outside of our city, be taken into consideration, our prospects for a good crop of honey were never better than they are now. All we need is dry weather, for a change, and warm nights during June. It is a known fact, that no honey will be developed in white clover during the day when the thermometer was down to 55° the previous night. Melilot has run out of existence all white-clover sprouts within our city limits, our hilltops, and their near surroundings. It grows everywhere where white clover used to grow; but its only merit is, that our bees are kept breeding during July and August, during which time they used to have a rest; and no brood, almost, could be found in our hives during the month of August. With the new start of vegetation in September, our bees would commence again to breed, and go into winter quarters with plenty of honey and young bees. Melilot has changed this state of affairs. Since it has taken possession of our commons and hilltops, white clover is there no more; bees keep up breeding until late in fall; have no stores for winter, as used to be the case, and, unless they are fed liberally, there is a chance for starvation during winter, or, at least, by the time that honey comes in again. We all have seen honey from melilot; but who ever saw a crop of the melilot clover? Don't recommend melilot any more as a honey-plant, Bro. Root. It does us more harm than good.

Cincinnati, O., June 7. CHAS. F. MUTH.

THE LAMP OF OUR FOREFATHERS.

Friend Root:—I send you a sketch of a relic of the past, the light of our forefathers, thinking it may be of interest to the readers of GLEANINGS. It is made of a soft cotton string dipped in melted wax, and a corncob. Melt the wax by gentle heat, and get two of the children to draw the string through it, while you hold it in the wax with a forked stick. The string should be about 150 feet long. Draw it through the wax twice, to give it a heavy coat. Use a cob with the small end broken off, and punch

the pith out. Wind a layer of the waxed string around the cob. When you get to the end with the first layer, turn and put a layer on lengthwise the cob, letting it project $\frac{1}{2}$ inch at each end of the cob; then wind around again, then lengthwise again, and so on until finished, letting each lengthwise layer extend $\frac{1}{2}$ inch more than the last; also make the layers that go round the cob shorter each time. When all is wound except one foot, push the end through the hole in the cob, letting it extend about 6 inches above the top of the cob. Bend all the projecting layers outward, giving it an appear-



ance as handsome as a vase. The wax can be tinted any color you choose, with any of the aniline dyes used for dyeing cotton. This makes a beautiful soft light, and will last for several weeks.

R. W. STEWART.

Bowls, Ga., March 15.

FRUIT-CANNERIES AND GLUCOSE; WHAT IS REPORTED AS BEING DONE IN CALIFORNIA.

I take the liberty of addressing you on a subject that is becoming a very important one to me and to my brother bee-men in this locality. Although I am a perfect stranger to you, yet to me your name is very familiar—so much so I almost imagine that I *do* personally know you.

For some years back the fruit-canneries have

been buying large quantities of honey. The natural supposition was, that it was being used by them in place of sugar, causing us to sell our product at the price of sugar; but on investigating this state of affairs I am informed by workers in those canneries that *no honey* is used whatever for preserving purposes. They simply buy it to adulterate it with glucose, making two carloads of such stuff from one of honey. Now the public are getting afraid to buy extracted honey for fear it is not genuine. Should this continue, it is going to destroy a large part of our business—the principal business in this section. Another point is, for two years the honey crops have been failures. This year the commission men are at their old tricks, trying to squeeze us down to the sugar-standard prices. I always believed that the supply of any given article controlled the price; that is to say, the less quantity, the bigger the market value would be. In the next place, you can not fail to see that the adulterating evil is really the worst; for every case of this rubbish sold to the consumer is just so much less pure honey sold by us. To sum it up in a few words, it keeps down our profit and ruins the trade in extracted honey. Finally a cent or two on the pound to us means a living; to the consumer the price will be just the same if we can get a responsible party to market our honey in the Eastern States, for on them we depend to buy our product.

This year the honey is splendid—white, and water-white. So far I have not seen any dark-colored honey, and the flavor of our sage honey is fine.

ALEX. MORRISON.

Newhall, Cal., May 30.

[What you say may be true; but we believe now, that, as honey has been coming in more freely in California, the price will soon be so low that the mixing of glucose would hardly be worth practicing. The rascals who would do this sort of work would not risk it unless there were considerable margin; and when the margin is small they will probably handle the pure goods. If the fruit-canneries in California should continue to use glucose, it is a matter that should be brought to the attention of the Bee-keepers' Union.]

REPORTS ENCOURAGING.

Bees are just booming. I have more honey already than I have had in three years before.

Beach City, O., June 12.

A. MILLER.

Bees are doing well. I am working 40 stands for comb honey; some hives have their second super on at this date.

CHAS. HOWELL.

Hackettstown, N. J., June 15.

We have been here since the second of April, and have extracted, up to this time, over seven tons of honey. By the time this reaches you we shall probably have ten tons; taken from 175 colonies.

MRS. H. F. CARPENTER.

San Fernando, Cal., May 29.

PROSPECTS OF A BIG HONEY YEAR.

Every spot of ground where white clover grows is one mass of bloom, and bees are just booming. I have never seen them work on clover as they are doing now. Basswood will bloom profusely.

CHAUNCEY REYNOLDS.

Fremont, O., June 8.

[It seems as if nearly every report reads like this. Prospects are certainly good.]

We had a good flow of honey from guajilla (pronounced waw-hee-aw, but properly gwah-heel-yah) and catclaw. It started about the 10th of April. Bees on an average were too weak to take the best advantage of the flow. I have about 10,000 lbs. from 160 colonies, spring count.

J. A. SCHUDDMAGEN.

Sabinal, Texas, May 19.

WHY THE RAMBLER SMILES.

Our honey-yield is a much better crop than last year, but still the yield at large will not be immense. I now have 7 tons, and will get 3 or 4 more. McIntyre writes me that he expects over 40,000 lbs. He runs his extractor with his water-motor, and it works like a charm.

Redlands, Cal., June 12.

RAMBLER.

The outlook for a good honey crop is good in the San Jacinto Valley. The first carload of honey of the season was shipped last week. We sold for 6 cts. There are two more carloads waiting buyers at the same price. The honey is extra thick, water-white, and of as fine flavor as I have ever seen.

H. I. MORSE.

San Jacinto, Cal., June 8.

GREATEST HONEY-FLOW IN YEARS.

We are having the greatest honey-flow here for years, and of the finest quality possible. I have extracted 75 lbs. from some hives, and have colonies with their increase, one swarm, which have filled nearly 100 boxes already. If it keeps on we shall harvest the largest crop ever taken in this portion of the country. I am running 90 hives at present, part for comb and part for extracted. I allow each hive I run for comb to swarm once, and get big results this year by so doing.

EDGAR BRIGGS.

Poughkeepsie, N. Y., June 17.

A GOOD REPORT FROM TENNESSEE.

Friend Root:—I should like to tell you what a continual round of pleasure we have had since swarming commenced. When I say *we* I mean my little wife and myself, for we two are all there are of us, and we have been busier than a man killing snakes. And such swarms I never saw before, for I have let most of my bees do their own swarming. I have tried both ways, and have had the best success that way. I said I never saw such swarms before. Well, I never did. We have had several swarms that it took two Dovetailed hives to hold. You could not get them into one such hive, even if you packed them in like white beans. Some of our swarms are great-grandchildren. That's the way bees increase down here. I never saw any thing like it before. The honey season has been exceptionally good, with the exception of about 12 days in May, when it rained every day. The bees have been on white clover for three weeks, or four, perhaps; and it is plentiful yet. It blooms here three or four times a year. We run for comb honey mostly; get 16 cts. for box honey, and 10 for rough. They don't want extracted here, but want comb mixed with it—what we term rough honey. But it's delightful business standing over a hive with half a bushel of bees in it, with the thermometer up to 85. If there is any sweat in you it is pretty apt to start.

We went into winter quarters with 28, and came through without a single loss: sold 4, and had 24 left; have 40 now, and let 8 run away while I was sick; and really I am glad they are gone. We have enough left to care for.

F. H. FINCH.

Summertown, Tenn., June 21.

OUR HOMES.

But seek ye first the kingdom of God, and his righteousness, and all these things shall be added unto you.—MATT. 6:33.

SOME QUESTIONS FOR A. I. ROOT.

Friend Root:—While I work for the support of myself and family in the six days that God has given for work, is it right for the preacher to work (preach) on Sunday for the same object?

While I live in a very plain and common way, and am unable to send my children to school, is it right for me to help the preacher to live in high style and educate his children?

These questions are asked in this and perhaps many other communities but I am unable to answer, so I refer them to you, feeling that, if it is your good pleasure to give us your views in the matter, they will be helpful to many. I try to do the right thing under all circumstances.

Roxobel, N. C.

G. H. BARNES.

My good friend, I am very glad indeed to help you in any such moral question as the one you propound—that is, so far as I am able to help you. In the first place, it seems to me you start out on a wrong basis. To be sure, it is most commendable for a man to support himself and family—to be self-supporting—to pay his way as he goes; and there are thousands among our neighbors whom we should be very glad indeed to see do that very thing. Yes, it is a sad reflection that, even in this our broad land, with its privileges and opportunities, there are so many who do *not* take care of themselves and their families—so many who are more or less a burden on the community. Now, while I say this I at the same time maintain that the man who has no higher motive than to support his wife and family stands on a very low plane. Let me see if I can not make it clear to you.

A good deal of the time the most of us talk and act as if all the duty we owed to God or to the world were to take care of ourselves and families—to be self-supporting; and when we speak of the different occupations that men enter into, we often consider which occupation will give us the most money. For instance, our agricultural papers at times advise our farmers to raise more corn or oats or potatoes, so they can make the more money; and is it perfectly right and proper to be striving for that line of work which will give us most pay? In one sense it is; but there should be before all of us a higher and nobler incentive. While we work for our own personal good, we should also be laboring for the public good, no matter what our occupation may be. Some men build houses, and it is a very commendable thing to do. The carpenter is considered a very respectable man. Well, now, suppose the carpenter should say, "I believe that, on the whole, I can make more money farming than I can in building houses, therefore I am going to sell my tools and buy a farm." This is all right and proper. Suppose, however, the carpenter had heard some friend or relative say, "Now, if I were you, instead of going on to a farm I would teach school—why, I get more money teaching school than any farmer or carpenter around here;" what would you think, my friend, of a schoolteacher who, simply because he can make more money at it than he could farming or in building houses, would talk like that? Or, if you choose, suppose you should hear some young doctor say that he had made ever so much more money doctoring than he had in teaching school or in farming, or any thing else he had tried; and suppose he should urge his friends to all go into the business of doctoring because there is lots of money to be made at it. What would you think of such a

doctor? Wouldn't you begin to feel uneasy at the prospect of having to call a doctor who had bragged about the large amount of money he could make in a short time by doctoring folks when they were sick? Why, I need not tell you that it would be damaging to the schoolteacher or to the doctor either, if it should get out that his sole or principal motive in teaching the children, or in doctoring sick folks, was to make as much money as he could in the shortest possible time. The teacher who has charge of your children, I am sure, is not that sort of woman or man; and if your family physician has no other motive than to make all the money he can—yes, and he may do a reasonably good job too, when he is called upon—why, I should say, God help you.

Why is it that we demand that the schoolteacher should have some other incentive, as well as the doctor, than that he may make money or support his family? A neighbor right across the railroad track once told me the reason he kept a bar in his house, and sold liquors, was that he might support his family and educate his children. He was a poor ignorant German, and I fear he was a bad man at heart or he would not have urged any *such* reason why he should go on keeping a saloon. Poor fellow! he *did* educate his children, but at the same time he educated *himself* to such an extent that he now fills a drunkard's grave. When we are looking up a teacher we want one who has love for his country and love for his fellow-man, and a high sense of the high honor and responsibility that rests upon him. We want him to realize the sacredness of his task. The schoolteacher who drinks or swears—no matter what his qualifications may be in the way of education—would never get a position if his bad habits were known; and I believe that few teachers, in town, city, or country would care to take the risk of being seen smoking a cigar or playing a game of cards. The whole world demands something better of them. The man who builds your house may be a rather bad man, providing he keeps his bad habits out of sight while he is on your premises, and at the same time does a good job. You do not care very much whether he makes lots of money at it or not; and even if he should brag of how much money he made in building that house, you would not care particularly about it, providing he did it as cheaply as any other carpenter would. But suppose the schoolteacher or doctor were to do the same thing—don't you see it would not do at all?

Now, these two professions I have been speaking of—teaching and medicine—come on to this ground of responsibility. The teacher who is supposed to exhort your children toward truth, honesty, purity, sobriety, etc., must *himself* set a good example. His soul must be in the work of making *child*kind, if not mankind, better. It is all right that he should get good pay for good work; but we do not want him to put the *pay* first. The schoolteacher who works *solely* for the money there is in it would not be worth having. We demand, in the language of our text, that he shall seek first the kingdom of God and his righteousness. Perhaps we do not put it in just so many words, but that is the way we feel about it; and *he* knows, and *we* know, that, just as soon as the community discovers that he is a good and efficient man, and is laying the foundation for good and noble characters among his pupils, then he will get good pay, just as the latter part of our text promises. The same with the doctor. If a patient of his is spoiling his body by using tobacco or whisky, we expect the doctor to be man enough to join hands with the preacher (I believe that is what you call him, friend B.),

and labor for the salvation of his *soul* as well as his body. Shame on the doctor who would say that he followed his profession only because of the money there might be in it! Why, a doctor is expected to do a large amount of doctoring without any pay or thought of ever getting a copper for it. It is a part of the business. If he has not a genuine honest love for his fellow-men, so that he can work for nothing, when the saving of life demands it, he is not fit to be a doctor, and he would not long be tolerated in any community. I appeal to my medical friends as to the truthfulness of what I say.

Now, the doctors and teachers are employed to look after the physical and mental welfare of the children of the people. What shall we say of the minister? In the first place, good friend B., you are making a fearful blunder when you take it for granted (or, at least, you seem to take it so) that the minister earns his money by the *sermon* he preaches on *Sunday*. Sometimes, where they can not do any better, they employ a minister to come in the middle of the day and stay just long enough to preach a sermon, and then go away, not seeing during the week the people he preaches to, knowing little or nothing about them. I believe, however, that such kind of preaching, as a rule, does very little good; and the preacher, again, as a rule, gets very little *pay* for it. But perhaps it is better than no preaching at all. In our place of worship we pay our pastor \$1400 a year, and, of course, he preaches to us every Sunday. He was engaged with the understanding that he was to preach one sermon on Sunday; but he commenced almost immediately giving us an evening sermon besides. And then he presides over at least two prayer-meetings; makes it his business to be on hand promptly at every religious gathering; hunts up, gets acquainted with, and exhorts toward righteousness, every person belonging to his flock; looks after and finds out who lives in every house in town; and if there is a family or person who does not attend church somewhere else, he makes it his business to give such person or persons an earnest, faithful exhortation in the line of our text. Besides this, if anybody in his whole parish is in trouble he expects to be consulted. If he finds out about the trouble, many times he does not wait to be invited to lend a helping hand. Not only is he a spiritual adviser, but he has at least excellent wisdom and judgment concerning medicine, law, finance, and almost every thing else that concerns ourselves and our neighbors. I do not mean that he *meddles* with what naturally belongs to law, medicine, or banking; but he is always ready to give you his sympathy and kind brotherly advice in all these matters.

Just after my conversion I became firmly persuaded that there was not *another* pastor in the whole world so helpful and kind as my good brother Reed. When God called him, however, to wider fields, another faithful messenger of righteousness took his place, and I soon began to feel that brother Reed had almost a duplicate. As the years passed by, something like half a dozen ministers of the gospel have presided over us, and I should almost feel hurt if any of my friends should compare them and call one better than another. My opinion, after very close and intimate acquaintance with these friends I have spoken of, is that they have fully earned every cent of their salary. In fact, for most of them we have voluntarily advanced the pay while they were with us. Two or three were offered *more* pay if they would stay, and they did not go away either *because* they could get better pay somewhere else. I knew them well enough, and knew the

circumstances well enough so that I could state very positively that they were not working for the *money* there was in it. My good friend A. T. Reed, whom I have mentioned above, certainly did not expect to make any money in laboring with *me* as he did at that memorable time 18 years ago. He was not *hired* to do it, and I presume most people would have said at the time that he was wasting his breath and his prayers. In fact, he rather went out of his way; but in so doing he gave you the Home Papers, which so many of you tell me have been helpful to you.

Now, then, good friend, what do you think of the sort of men who often say, "Well, the world is about all alike; when we get right down to it, they are *all* after the almighty dollar"? Somebody, perhaps, gently suggests, by way of remonstrance, "Are ministers and teachers *all* after the almighty dollar?" But the one who makes the proposition very often says, "Yes, sir—every last one of them. When you get right down to it, the preachers—the whole of them—are preaching for the *dollars* and for nothing else."* God pity the man who believes such a doctrine as that. Yes, God pity the man who is so hardened and bitter that he can even give *voice* to such sentiments, even if he does believe them. My answer, then, to your first paragraph, is this:

It is right for the preacher to preach, or work, if you choose, on Sunday; for God has said, "Remember the Sabbath day to keep it holy;" and our good friend the pastor is kind enough to exhort us to holiness on that day, when he can have us all together, even if he does work during the week harder than many of us. One day in seven, we as a people have consented to lay aside business and week-day cares, in order that we may better consider matters pertaining to the kingdom of God and his righteousness. Under such circumstances it is eminently fitting that the pastor of the church should lead us and teach us, and exhort us to follow godliness during the week.

Your second paragraph calls for a little more attention. Is it right that ministers' children should wear better clothes and have a better education than the children of his flock? My opinion is, that it would not be exactly the thing for ministers' children to wear better clothes than *any* of the other children in the parish; and my experience is, that such is not often the case. We should expect, however, that ministers' children would be as well brought up, and that they would certainly take as good care of their clothing, etc., as any of the others. In point of education, we should be rather ashamed to permit the minister's children to be behind the general run. We might say the same of clothing and manners. Friend B., you would not want God's holy house to be very much poorer than the business places in your neighborhood. In fact, it ought to be the other way. The man who has not sufficient reverence for God's holy place to want it neat, tasty, and orderly, ought to be ashamed of himself; and the same would apply to the minister. In a neighboring town the minister was so poorly paid that he used to work at almost every thing during the week. One day he was plastering his house, and a spruce young fellow came for him in order that he might be married to his girl. When he found that the chap covered from head to foot with mortar was the preacher, he went away offended. He did not propose to have so sacred a ceremony, so far as he was concerned, per-

* People who make remarks like the above ought to remember that people are likely to conclude they judge others by themselves.

formed by any one who looked as that fellow did. The young man was at least partially right. It was not the minister's business, however, to be ashamed of himself. It was the business of the people who employed him year after year, and who neglected to pay him as he ought to have been paid.

Isn't your second paragraph sufficiently answered? Friend B., you go right straight and get acquainted with your pastor; follow him about from morning till night, all through the week; and if you do not decide as I have done, that he earns his money as honestly and as well as anybody does, then I shall be mistaken.

I am glad to see your concluding paragraph, and that you are trying to do the right thing. If I have not answered you sufficiently, have I not given you some helpful suggestions in the line? And don't you believe we shall have better homes and better neighbors when we cultivate such a feeling toward our spiritual leaders as I have pictured to you in these brief remarks? Remember, I once stood where you now do. For many long years I found fault with ministers—called them lazy, etc. May God forgive me; and may the uncharitable comments on the good clothing that every community absolutely demands that the pastors of their churches should wear be forgiven. Wouldn't it be best for all of us—carpenters, farmers, schoolteachers, and ministers, if we really and truly made it our business to seek the kingdom of God, and his righteousness, leaving it with God and the great wide world to pay us for our services what we ought to have? Oh! you do not know how much happier and pleasanter I have felt since I have been working—not for money, but for God's kingdom; and the astonishing part—at least to me—is, that, as soon as I have forgotten to look first after the money part, God has seen to it that "all these things" have been added unto me and mine most abundantly. May his holy name be praised.

Even so did the Lord ordain, that they which proclaim the gospel should live of the gospel.—I. COR. 9:14.

NOTES OF TRAVEL.

ON THE WHEEL—CONTINUED.

When I neared the well I was informed that I would have to have a permit in order to get over there. There was so much oil on the ground, and covering the surface of the water that stood in hollows, and even floated down the creek, that they were very careful who was permitted to go around the derrick, on account of the danger of fire. When the managers discovered that it was A. I. Root who was making inquiries, they not only gave me the permit, but went over and showed me around. No tanks had as yet been put up to save the oil; and during the recent rain of sixty hours, a great quantity of it was washed down the stream. They had drilled through ever so many hundred feet of solid salt; but as they deemed the oil they have struck to be of more value than the salt, their attention has been turned to the former.

There is one thing that is particularly pleasant to the wheeler all through Summit County; and that is, the beautiful pure soft water almost everywhere you go. In some places the springs are so plentiful along the hillsides, that at almost every farmhouse there is a watering-trough, with a running stream of pure water right out along the roadside. I reached the old home of my childhood in Mogadore, Summit

Co., in the middle of the afternoon (feeling but little fatigued after traveling more than 40 miles); but the matters that particularly interested *me* there would not be of so much interest to the readers of GLEANINGS.

At Tallmadge I called on my relative, Mr. Wilbur Fenn. He was out plowing a piece of ground just 100 rods long; and the minute I looked down the furrow he had just turned, I uttered an exclamation of surprise and delight. Do you know why? This hundred-rod furrow was about as straight as you could draw a string. It was of even, regular depth its whole length, and the fine soft loam rolled over exactly the same way from one end of the furrow to the other. In fact, the field was almost ready to plant just as the plow left it. My cousin, young Fenn's father, explained to me that one reason why his son did so nice a job just then, was that he was teaching his hired man how to plow straight. Some of you may say that a crooked furrow would give just as good a crop as a straight one. Well, I suppose it might under some circumstances; but look here, my friend. The man who plows a straight furrow like that, does every thing else accordingly, in making his preparations for a crop. The ground will be so well fitted, and the planting so accurate, that a good hill of corn will grow on every foot of the soil, where there is room for a hill. There will not be too many stalks in a hill, nor too few; and there will not be any good spots in the field, and poor spots.

Young Fenn is in Terry's neighborhood, and he has caught on to the ideas of good farming that have been so vehemently taught. Let me tell you something about how hard he has worked to get his ground so he could plow such a furrow. First, all the trees and stumps were disposed of; then the rocks and stones. Why, this same ground has been farmed for perhaps fifty years; and when young Fenn got hold of it he commenced getting out every stump and stone that would make the plow dodge. In one place, after digging out a stone that broke his plow-point, he found six old broken plow-points in the same spot. His predecessors had broken their plow-points, one after another, and contented themselves with putting in a new one and going ahead and leaving the cause to do the same thing again, year after year. Of course, the ground is underdrained; but even then I could not comprehend how that soil should turn over so beautifully soft and even and fine; but he explained it by saying the field was fitted for oats when that sixty-hour rain came; but the water settled it down so solid and compact that he decided he would not undertake to get the crop under in such conditions. Therefore he plowed it all over, and was going to put in corn.*

Just as I was stepping into the buggy to leave, our young friend said we must hold on just long enough to see his potatoes in the cellar. Although it was the last week in May, he had not yet planted them, and did not propose to plant them for some little time. His forte is late potatoes, and he does not undertake to put in wheat after them, as friend Terry does. In fact, he has a rotation of his own fashion, suiting his own needs. The cellar was closed up as

*You see, the point is that an expert farmer will not undertake to produce a crop unless he has the conditions something near what he thinks they ought to be. I have frequently had ground fitted ready to plant, just as he did; but I went ahead and put in the seed, thinking I could not very well help the matter. Of course, this field 100 rods long was doing things on a little larger scale, and it would be rather expensive business to go ahead when there is a strong probability of failure over so large a piece.

tight as a bandbox. Not a bit of air nor light could get in. A hundred bushels of potatoes which he had selected and saved for planting were piled up in the cellar; and so cool was it kept that scarcely a sprout had begun to show, even though it was May. He raises principally the Empire State; and every time I go past his place late in the fall I enjoy looking at the bright clean green foliage that is sure to be seen in his potato-field just before frost. Somebody told me that he had last season about 1400 bushels, for which he received over \$1400. You may say he was lucky in having a big crop when there was a general scarcity; but I tell you it was more *hard thinking and prompt acting* at just the right time than it was *luck*.

A little further on we came to the home of L. B. Pierce, of Tallmadge, O. The initials L. B. P. are so familiar to all who read our agricultural papers that I shall hardly need to introduce Mr. Pierce. He is a considerable grower of strawberries as well as of other small fruits, and his particular line of work seems to be in putting strawberries on new ground just reclaimed from the forest. The land in his vicinity is worth perhaps forty or fifty dollars an acre—that is, some of it can be bought for that; but after friend P. has cleared it of trees, stumps, and stones, and got on a crop of strawberries, it would probably take several times fifty to buy it. The fresh woods dirt mixed with the sandy loam looked so soft and rich and inviting that one could scarcely resist the temptation to get down on his hands and knees to get out the weeds and fix each plant in nice trim to push ahead. Out of many thousands of strawberry-plants put out at just about the right time in spring, he is going to have hardly a missing plant; and the way the great bushy roots have pushed out in the black leafy mold is enough to make anybody enthusiastic.

Friend Pierce has not only in his writings but by actual practice demonstrated the advantage of having the grower deliver his berries straight to the consumer. His chief part of the berry business during fruiting time is to sell them. His oldest boy looks after the picking and general work. How could a strawberry-grower get along without children of his own? In fact, I don't see how anybody gets along very much in this world in the way of building up a business unless he has children to back him up and encourage him. Every grower has ideas of his own, and methods and tools of his own; and it is quite a satisfaction to go around and see different enterprising and progressive men, and compare notes. Friend Pierce is a most untiring writer for the different agricultural journals; and his writings are all from practice, with very little theory mixed in. This is one reason why they are so practical and helpful. As one goes about on the grounds he sees here and there a hundred different things that have been described in the papers. When I got around to my cousin's, D. E. Fenn's, Tallmadge Center, it was raining. Perhaps I might explain that D. E. Fenn was almost ahead of friend Terry with his covered barnyard. Some years ago he decided that he did not want his straw, his cattle, his manure, nor any thing else, out in the weather over winter; so he moved two old barns up near each other, and then made a great roof so as to unite and cover both. Under this immense roof he puts all his straw, hay, grain, live stock, and every thing else, and has room for all his manure, where he keeps it on a plan similar to Terry's with the covered barnyard. It was also pretty nearly noon. I begged the privilege of taking my accustomed nap just before dinner, while it rained. Just as soon as I hinted my wishes I was ushered into one of the daintiest little

sleeping-rooms you ever did see. By the way, I wonder whether anybody else has felt as I have, that it is a real luxury to close your eyes for sleep amid *pleasant surroundings*. I do not know whether you, my friend, are in the habit of thanking God for your pleasant sleeping-room or not; but if yours is a fair sample of those that are placed at my service on my wheeling raids, I think you ought to thank God this minute for your sleeping-room, and for the dear wife who keeps it all the while so tidy and trim. Amid the patter of the rain-drops I bade adieu to consciousness, and rested. I have often said that nobody can relish a drink of cool spring water as well as can the wheelman or wheel-woman, if you choose (for wheel-women are crowding close upon our heels). And now I wish to say that one who has never ridden a wheel can hardly appreciate the delicious sense of a restful sleep. In just three-quarters of an hour, as it was the day before, I was fully alive, with all my energies and strength at their best. Why, of late it just makes me feel happy to swing my arms and inflate my chest. I feel proud of the strength that God has lately seen fit to give me. Information that dinner was just ready was another piece of news that made me inwardly thank God; and in a minute more I was invited to thank him out loud. My cousin commenced making some apology by saying that she did not happen to have any thing in the house that morning ready, and so I would have to put up with—just at this juncture I stopped her, telling her that I was just thinking that Mrs. Root must get the recipe for that delicious potato soup. Well, we had so much talk about it that I don't believe I got the recipe in full; but she said the soup was made of potatoes and mutton broth. May be your wife knows how to make the same kind. If she does not, sister Fenn will have to explain.

Had it been in Medina County, I should hardly have dared to start out on the roads. But they have coal-mines around Tallmadge, and I noticed that the walks along by the roadside were made of slack coal. Now, there is not any thing nicer to run a wheel on, to my notion, than walks of this kind. Fine gravel, without any stones larger than a bean, for instance, will do almost as well; but loose pebbles are rather detrimental. For a while it was rather too wet to get along; but I followed the roadside paths, executed some gymnastic maneuvers now and then when the foot-path crossed a ditch or went down steps, but on the whole I got on—very nicely for several miles; then the roads began to get dryer and dryer, and pretty soon it was dusty again. Part of the way between Cuyahoga Falls and Hudson they have a graveled road, made some two years ago. I tell you, wheelmen can appreciate roads like that one, through a sandy country, or during a muddy time in any country. The minute I struck that graveled road it seemed as if I should fly the rest of the way. I actually did run for several miles *faster* than the wind. For instance, when I started on the graveled road there was quite a little breeze blowing against my back, from the south. I said to myself, "Now, old fellow, you are not going to have any air at all this very hot day;" and when my speed had reached exactly that of the wind, there was, as I expected, no breeze, and it was a dead calm. As the road was so nice, however, I put on a little more strength, and soon doubled my former speed. Then a delicious cool breeze sprang up from the *north*—that is, it seemed so. I slacked up, and then there was no breeze at all; then I alighted to prove it, and there was the same gentle breeze, clear and distinct, from the south. So you see I

rode faster than the wind, and that, too, without very much trouble.

Finally up behind my back came a thunder-cloud. With the wind pushing me from behind, I could almost run away from the storm; but it finally drove me into the woodshed of a spacious farmhouse. The good lady, as soon as she saw me rushing in on my wheel, invited me to come inside; but when I told her that I rather preferred the open air during the thunder-shower, she brought an easy-chair for me to sit in. Did you know, my friend, what lots of kind people there are in this world, especially if one only behaves himself even half way in a Christian-like manner? Then there was an old-fashioned well-curb, with its "old oaken bucket." Why, if everybody liked water from the well and spring as well as I do—that is, when I am riding a wheel—there certainly would not be much longing for wine, beer, or cider.

As soon as the rain let up, I pushed on for friend Terry's. The roads were somewhat sticky, but his home was not far away, and you know I have had considerable drill in running a wheel over slippery places. My riding over the ice and through the slush and snow all winter long was not without its advantages. Even though the wheels should slip and slue, I have learned to keep my seat pretty well. Another thing, the roads were all the while drying off, so that, if I can manage to keep up on the start, I pretty soon get along very well. In this case, however, it had rained much harder toward friend Terry's than at the point where I started, so I was soon in real trouble. There were no houses near, and the mud was so soft that it was entirely out of the question. I had nothing on my feet but thin cloth shoes. I always prefer these for wheeling. I could not walk in the mud, and I could not very well walk in the grass; but after a little experimenting and considering I found I could run the wheel in the grass where the ground was decently level. It was a good deal like floundering along, however, until I reached a point in the road where friend Terry's farm commences. You see, he has gone and fixed up the roadsides, and made them like a lawn. Another thing, he has graveled the road where it goes through his farm, so while the mud began to fly from the rubber tires I began to smile through my wetness. The wet grass and rain together had pretty thoroughly drenched my feet. I was hoping I could get into the covered barnyard, or somewhere out of sight, and slick up a little before presenting myself to the women-folks. Whom should I meet, however, just before I got up to the gate, but one of the Misses Terry? I was just beginning to feel embarrassed when she took in the situation, and then she laughed and I laughed; and when I concluded that it was nothing but a laughing-matter I felt considerably better. Pretty soon friend Terry informed me that he had just put a letter in the postoffice, requesting me to put off business and come right out there as soon as possible. So you see I had been specially invited, but did not know it. I always enjoy being prompt; but this time they said they thought I had outdone even A. I. R. himself.

Now, friend Terry's dooryard is always pretty; and after the nice summer shower, I expected it to look radiant; but I was not at all prepared for the sight that met my eye as I came through that front gate. A group of rhododendrons and azaleas was in the front yard near the house, and the latter were just in full bloom. They were clothed with flowers to such an extent that the blossoms enveloped them like a garment; and each blossom seemed to "blush at the praise of its own loveliness." I do not claim that the latter is original; but no

one could appreciate fully such a description until he had seen that group of azaleas. Why, I did not know that the whole wide world contained anything so bewitchingly beautiful. I have visited fine residences in the great cities and on the Pacific coast; I have seen green-houses at their best, filled with the rarest and most costly plants the world affords; but I never saw any thing that took hold of all there is in me to appreciate and enjoy, as did that sight. If Mrs. Root were here she would say as she did about the nice dinners and the nice bedrooms, that the wheel, the perspiration, and the flow of animal spirits, had colored up things. Well, may be the wheel and my pleasant rides had something to do with it; but, dear friends, let us rejoice that it is not an unhealthy nor unnatural exhilaration. Perhaps I have earned it somewhat by giving so much of my life to indoor work.

In the back of the yard there was another plant that got hold of me something like the azaleas. The latter cost quite a lot of money. They retail at \$1.50 to \$2.00. By taking half a dozen, the group I saw cost only \$1.00 each; but when I asked friend Terry how much he paid for that *Vanhouttea spirea*, what do you think he said? Why, it cost *only 15 cents*. His plants all came from the nursery of Storrs & Harrison. He went there and picked them out himself, instead of sending by mail or express, or patronizing a tree-peddler. I think there is a moral there too. If there is a nurseryman in your vicinity, go and visit him; get acquainted, and then pick out your stuff, instead of sending a thousand miles away to somebody who sends out gorgeous catalogues. No offense is intended to the catalogue men; they are all right when there is not somebody in that line of business near your home.

I declare! I believe I shall have to wait again, until our next issue, before I tell you about friend Terry's farm in the latter part of the month of May, and what it was he was so anxious to have your humble servant see at just exactly that time. It was not azaleas, although I would have cheerfully made such a trip to see those alone.

Continued in our next.

HIGH-PRESSURE GARDENING.

BY A. I. ROOT.

GARDENING IN JUNE.

Strawberries are now in their height, and we are gathering ten or fifteen bushels a day. I was once inclined to be skeptical about the need of perfect blossoms among the imperfect, to insure perfect fertilization; but I have got all over it now. By some blunder we had a fine row of Edgar Queens, with no perfect blossoms within several rods of them; and although there is a wonderful crop of magnificent berries—that is, magnificent in size, almost every one is knotty, gnarly, and ill shaped; and, in fact, there is a general difficulty with all of our imperfect berries in this respect, this season, unless they stand very close to a row of Jessies, or some other berry that produces a profusion of perfect blossoms. And, by the way, Michel's Early is coming to the front nobly, not only as an early berry but as a fertilizer; it has given us our first berries, and quite a good many fine large ones; and the one row that we had decided to try just one more year before plowing them up, has given us a good many bushels of fine-looking berries, excellent in flavor and perfect in shape. We are going to plant the variety

largely, and put it in our price list. This illustrates an important point: For three years we have had unfavorable springs for all extra-early berries; and this present season has been the first to let it show what it could do. All extra-early strawberries should be thinned out, or planted out far enough apart so the sun can have free access to color up the berries early, letting them grow without a mulch. This year we sold berries fully a week before our nearest competitor had picked a bushel. He has none of the very early kinds, and his berries are mostly in grass and weeds. These latter save to some extent the expense of mulching, but they make the berries late. For our extra early we want the ground free from mulch or anything else that would shade or cover the surface. Then they should have good cultivation, with plenty of room between the plants, as I have explained. This latter is some trouble, but we get almost double the price for our extra-early berries, and have no trouble in finding customers. Just now very fine berries are retailing on our streets for 8 cts. Our Timbrell strawberry has finally got under way, and is growing with wonderful vigor—that is, *two plants* are. Two more are going to make a live of it, and that is all we have to show for our dozen. The last half-dozen sent us were remarkably large, strong, healthy plants. By some bad management, however, they were kept out of the ground until the plants had begun to send out white shoots, like a potato in the dark. We have bought quite a quantity of nursery stuff this season in this same predicament. It looks as though it had been weeks or months in a cellar or cold storage, or something of that sort. Very likely it is less bother to keep plants ready for shipment in this way, but they do not *compare* with plants dug right out of the ground the day they are to be shipped; at least, that has been my experience.

NO BEES NO STRAWBERRIES.

Berries are about all gone, and I think that, on an average, we have had about a good half-crop. I am more convinced than ever that, if cross-fertilization is not performed by the *insects*, there will be no perfect crop of strawberries. Half of the present crop was not fertilized, and did not develop.

R. STEHLE.

Marietta, O., June 15.

TAKING SOME OF OUR OWN "MEDICINE."

The following is just the kind of letter that we like to get—that is, when things we send out do not come up to what they should do:

Mr. A. I. Root:—In looking over June GLEANINGS, page 452, I saw a note from Henry Martin, followed by your advice what to do. Now, friend Root, we have been taking your journal almost from its infancy, and have been dealing with you more or less every season, and have no reason to complain; but as you were advising dealers to ship their goods properly, I thought I would advise you to take some of your own medicine. We ordered fifty Haverland strawberry-plants, ten raspberry-plants, and half a pint of Burpee's bush lima beans. When the plants came to hand they were heated. We opened them out that night, and laid them in the cellar until the next morning. Seven of the strawberries are all that I got out of the fifty, to make even a start, and one or two raspberry; and the beans, I should like to know what is the matter with them. They seem to have no vitality at all. I planted about two-thirds of them when I planted my first beans, and not one ever sprouted; the rest I planted later, when I planted my pole limas. My own are up nice, while there are not half a dozen of the bush limas up, and they seem withered. I can not account for it unless they were some that never matured.

Owaneco, Ill., June 6.

MOLLIE O. LARGE.

I am surprised to know that the strawberries

were heated. We have claimed that our most packing was of such a nature that it would not heat. Your report, however, seems to indicate otherwise. I presume it was this heating that made all the trouble in strawberries and raspberries. We will credit you with the value of the plants you lost, in something else, or replace them, as you may choose. In regard to Burpee's bush lima, we have seen a report in one of the agricultural papers, quite similar to yours, in regard to their vitality. You may remember, as you have taken GLEANINGS so long, how much money I squandered on bush limas when they first came out. I gave \$75.00 in gold for a single handful of bush limas; and I abandoned them almost solely because we could not get them to mature in our locality. My experience indicates, too, that both the Burpee and the Kumerle bush limas are very slow of germination. Unless the weather is just to their notion they will rot in the ground or grow very imperfectly. This statement will be referred to Burpee himself; and if he does not make the matter satisfactory, we will. Other friends who have had like experience will please report and let us know what will make the matter satisfactory. And now, my good friend Mollie, I want you to bear in mind that we folks here at the Home of the Honey-bees do not propose to offer "medicine" to *anybody* that we would not take ourselves.

HEATING HOT-BEDS BY STEAM; ALSO SOMETHING MORE ABOUT THE BUBACH STRAWBERRIES.

Mr. Root:—How many feet of hot-bed, linear measure, will a ten-horse-power boiler heat, beds 6 feet wide? Have you any second-hand boilers to sell, or any new ten-horse-power upright boilers.

You spoke of the big Bubachs. I have been selling them off the wagon for nearly three weeks. Some of them measure $5\frac{3}{4}$ inches around. You see, I got my plants of you. We have sold about \$300 worth in three weeks. The people are pretty well worked up over the berry-business here. My daughter, 14 years, and my son, 13 years, run the wagon every day. We are having a big trade. J. W. NICODENUS.

Newcomerstown, O.

[Friend N., I am sorry that I can not answer your question; but a ten-horse-power boiler would warm a tremendous amount of beds—I should think a quarter of an acre, without any trouble. We have no second-hand boilers at present, but we could sell you a ten-horse-power boiler for \$175. All who have been using steam through drain tile, for warming hot-beds, have expressed surprise that so little steam went so far. If any of our readers can give us any facts from experience, in this matter, we should be glad to get them.]

THAT FLAT PEACH.

Mr. Root:—The flat peach spoken of on page 491, GLEANINGS, is "Peento" or one of its seedlings. It was imported from China many years ago, but was in some way lost, and was again introduced into the country from Australia in 1869. It is sub-tropical, and succeeds only where the orange can be grown. The moss in which it was packed is the Spanish moss, common in Florida, Louisiana, etc.

W. W. IRWIN.

Dept. of Ag., Washington, D. C., June 24.

THE MUSHROOM SPAWN WE HAVE BEEN SELLING.

Dear Sir:—The mushroom spawn I purchased of you some time since proved entirely worthless, not producing one plant, although I fol-

owed closely the directions accompanying the same. Although I produced an inferior kind from spawn taken from my own manure-heap, in each place I tried yours in parts of the same beds. Has any one to whom you sold this spawn, or you yourself, succeeded in raising mushrooms with this spawn? If so, will you tell us how GLEANINGS exactly how it was done?

ALLEN BARTOW.

Milan, O., June 23.

P. S.—I have kept bees for over thirty years; never knew so much white clover or nectar to be gathered so rapidly before.

[Friend B., to tell the truth we have *not* as yet succeeded in getting any mushrooms from the spawn we purchased of Johnston & Stokes, just such as we sold you; nor have we had any report from any one who has succeeded. Knowing Johnston & Stokes to be an old and reliable firm, we purchased the spawn and sent it out before we had time to test it ourselves. You know it takes a much longer time to test mushroom spawn than it does to test ordinary garden seeds. May be others have succeeded. We hope so. We have just one other complaint like yours. If this notice does not succeed in bringing some report of success, we shall have to go back to Johnston & Stokes.]



Lay up for yourselves treasures in heaven, where neither moth nor rust doth corrupt, and where thieves do not break through nor steal.—Matt. 6:20.

WE never saw more white clover out than now.

Did you ever! G. M. Doolittle recommends box hives for farmers! Well, we do not know but we would too, for the class he speaks of.

W. L. COGGSHALL, that extensive bee-keeper of West Groton, N. Y., lost so heavily in bees last winter that he ordered and has received a carload of bees shipped from the South, to replenish the loss. Other bee-keepers in his vicinity have lost, so we are told, all the way from 65 to 70 per cent of their bees.

A PORTRAIT and biographical sketch of C. H. Dibbern appears in the last *American Bee Journal*. Mr. Dibbern has been one of our old correspondents. Although not a prolific writer, yet what he does have to say is valuable, and has pith in it. We were surprised to see that Mr. Dibbern, although 53 years old, looks so young.

We would call special attention to our answers to questions from beginners, that are now running consecutively in GLEANINGS. We have taken more than ordinary pains to answer the questions correctly, and we believe that some of the veterans, as well as the beginners, will find pleasure as well as profit in their perusal. Whenever we make errors we should be glad to be corrected.

A FEW days ago Mrs. Atchley mailed us four laying queens, with about a dozen attendants, *all in one cage*. Two of the queens came through alive, and the other two were dead. We should have expected that only the survival of the strongest would have been left. Whether the two that are alive, and seem to be getting along peaceably, agreed to disagree, or whether

these same two killed the other pair, or whether the other two fought between themselves, and both fell mortally wounded, leaving the other pair, is hard for us to say. We returned the queens to Mrs. Atchley to-day, June 14, and will doubtless hear from her later as to whether the two surviving queens agreed to disagree all the way back. If queens would *only agree*, it would be a very economical way of sending four or five together; but they don't—at least, we never supposed they would when sent by mail in this way.

REPORTS ENCOURAGING, AGAIN.

In another column we reproduce an old department that almost, during these past seasons of failure, had become extinct—that is, Reports Encouraging. In that department we give in this issue quite a fair average of hundreds of reports that are coming in, saying, with scarcely an exception, "Bees are booming;" "Never had such a honey-flow," etc.; and it begins to look as though the spell of poor seasons that we have had is broken, and the old-time honey-flows from clover were coming once again. Is it possible that we are going to have one of our old-fashioned honey-flows? We think it is quite probable. In order to get at a correct status of the situation we hope our subscribers all over the United States will send us reports thick and fast as to what bees are doing. It is to the interest of every honey-producer to know whether the honey-flow throughout the country has been heavy or light.

COWAN'S GUIDE-BOOK IN SPANISH.

ON page 447 we said that we knew of no bee-book printed in the Spanish language; but we have just noticed in the *El Colmenero Español* an advertisement of Mr. Cowan's celebrated work, translated into that language by Mr. Enrique de Mercader-Belloch. Mr. Cowan also, in a card just received, calls our attention to the fact. What we really meant to say was that we knew of no bee-book written by a native Spaniard. Considering the natural advantages of Spain over England, in its flora, we certainly had a right to expect a bee-book from some of their native writers, rather than depend on a mere translation of a foreign work. We shall be glad to notice any advance that our friends in Spain may be making in bee-literature. It seems strange that the French should have such an inexhaustible amount of literature on bees while their neighboring and adjoining nation has practically none. The advertisement in question says that this is the only bee-book in Spanish, and that Mr. Cowan's work is printed in French, Russian, Swedish, Danish, Spanish, and German.

QUEENS BY MAIL FROM ITALY; EGG CANDY VS. GOOD CANDY.

Besides the consignment of imported queens by express, noticed elsewhere, we have been receiving, within the last three or four weeks, consignments of half a dozen imported queens by mail. The loss was so small that we have about concluded that hereafter we shall have all our queens come by mail from Italy; and had it not been for the fact that we put in the egg candy with the Good (or Scholz) candy, each kind in separate holes of the cage, we believe that all the queens would have come through alive. As it was, many of the cages—in fact, all of them—had a particularly foul and sickening odor. While the queens themselves appeared to be perfectly healthy, the bees were in the last stages of dysentery, and, of course, soiled the inside of the cage. Why the dysentery? We can assign no other cause than that

the egg in the one kind of candy proved to be unwholesome. Examination of the cages shows that, while the Good candy was used liberally, the egg candy was eaten of only sparingly. This seems to show us that, even though the bees partake of it sparingly, it is unwholesome enough to cause disease and the general foul odor in the cages. This we have never noticed before in cages having only Good candy. We are entirely satisfied now that the egg candy, although it holds its moisture, and remains perfectly soft, is not a fit bee-candy; and now having tried almost all the bee-candies ever described, we go back to the Good (or Scholz) candy, convinced that it is the best, after all. If we were to add any thing else to the equipment of the cage it would be a water-bottle; and on long distances we are of the opinion that, especially in hot weather, the water would tend greatly to bring the bees through in good order. We just sent a consignment of queens to Australia, some having water-bottles, and some not, and we shall wait with interest the results. It is proper to state that Mrs. Atchley has called our attention to the water-bottles, and urged upon us the importance of trying them again. We tested them years ago, with decidedly favorable results; but as the Good candy was not then in use, we concluded, after trying the new candy, that the bottles were not necessary; but perhaps this conclusion was reached a little too hastily.

BIRDS OF MICHIGAN.

PROF. COOK sends us a beautiful paper-covered book with the above title, full of beautiful pictures of most of the birds one is likely to meet in this vicinity—perhaps most of the birds of the United States, or, at least, this portion of it. There are 131 pages, with illustrations on almost every page, and frequently two or three on the same page. The book is not only interesting but valuable, inasmuch as it behooves us to know our friends from our enemies. As an illustration, turning to the king-bird, on page 81, we find the following: "Does more good than harm, as it kills myriads of noxious insects, and, usually, but few bees. Prof. S. A. Forbes found that 42 per cent of the food of several examined consisted of insects;" and under the head of "Bluejay," a bird that has caused no little concern to bee-keepers, we find the following: "Prof. J. A. Allen informs me that he has taken a great number of the eggs of the tent-caterpillar from their stomachs in winter, in Massachusetts." There is not as much in the book as I should like to see in regard to shooting robins and other birds because they destroy fruit. I find, however, this much in the book in regard to the American robin: "Eats myriads of insects, mostly noxious species; angleworms and fruit: cherries, berries, and grapes; 40 per cent of the food of these birds examined by Prof. Forbes was found to be cankerworms." Now, in view of these reports is it not somewhat a question in regard to the policy of shooting robins, bluejays, or king-birds? In regard to the English sparrow, see the following: "Eats grain, often very extensively, especially peas; vegetables and insects; drives away our native birds; is very filthy about houses; a three-cent bounty is thinning its ranks, and often, through incorrect determination, the ranks of other sparrows; breeds abundantly; it is reported that thirty young may be reared from a pair in a season." This valuable book is sent free to all Michigan people interested in farming, etc. I do not know on what terms it may be obtained by the residents of other States. As it is sent out by the State Agricultural Collège, I presume information may be

obtained there, or of the author, Prof. Cook, himself.

APICULTURAL NAMES; CHANGING TO BETTER ONES.

IN *Stray Straws* for this issue, Dr. Miller says friend Pettit thinks that the word "queen-excluder" is a misnomer; that a better name would be queen-bar. The latter certainly has an advantage in point of brevity and exactness; but we question whether at this stage it would be possible to change the name. A good many of our terms, while not accurate, are very serviceable. They cause no confusion, and but little would be gained even if we could change to a more exact name. You will remember that, some time ago, it was seriously proposed to change the name of extracted honey; but no change was made—first, because no better one was chosen; and, second, custom and habit were so strong that they could not be readily overcome. After all, "queen-excluder" is not so bad. It *does* exclude the queen in more ways than one. We question whether it would be desirable to even attempt to make a change in name, solely on the ground that it would be practically impossible to do it; and, even if we partially succeeded, it would make confusion, and beginners would want to know whether queen-bar and queen-excluder were one and the same thing or different articles. The same confusion formerly existed when we used the term "broad frame" to indicate the receptacle that used to be sold so extensively for holding four and eight sections. As broad frame and brood-frame were sometimes confused in writing, we tried to change the name to *wide* frame; but in spite of all our efforts, using wide frames only in our catalogue and other printed matter, the two names continued to be used indiscriminately for the same article; and beginners who read other catalogues besides our own began to ask whether broad frame and wide frame were one and the same thing. Under the circumstances we rather jumped from the frying-pan into the fire; and would we not be doing the same in trying to change the name of queen-excluder to queen-bar? The lesson comes right here: That those of us who make names for new articles in apiculture should be careful to select a name that is accurate and brief.

SUNDAY OPENING AT THE WORLD'S FAIR, ETC.

I CONFESS that I do not see, at the present writing, exactly where my duty lies in regard to visiting the great exposition. It *may* be right to say that people have a right to their own opinions in regard to what we ought to do on Sunday; and some claim that it is everybody's privilege to respect the Sabbath, and to try to keep it holy or not, as he chooses. But even if we should grant *this*, is there anybody, who pretends to be honest and respectable, who believes it right to repudiate a square and fair business contract? I know there are people who wiggle out of their contracts and agreements by saying that "circumstances alter cases," etc. My general rule of conduct, however, has been to give all such people a wide berth; therefore if I act according to my feelings I should not visit the exposition at all. To tell the honest truth, I would much rather stay at home. May be, however, I ought to go. If so, I want to let *duty* and *not* inclination rule, as I have been trying to teach you.

I do not know that I am very much surprised to hear that those who have no respect for the Sabbath have been easily persuaded to go a step further and have no respect for their contracts or bargains. Judging from past experience I should say that, sooner or later, this

people will reap the natural reward of their transgression. Some have urged that no disaster has as yet overtaken them. I once heard of a man who habitually defied God and his holy word. He one day called the pastor of the church to look over a field of grain. Said he, "See there. I plowed that field on Sunday, and planted, and cultivated, and cared for it on Sunday; and yet, notwithstanding, I have, as you see, more than an average crop. Now, does not this prove something?"

"Yes," replied God's faithful servant; "it does indeed prove *one* thing; and that one thing is, that God does not always settle accounts with transgressors on the *first* of October."

Perhaps the World's Fair may get through until the first of October without the just judgment of an offended God and an outraged people falling upon them; but my opinion is, it will come about soon after if not before. Already the Chicago papers are beginning to admit the Sunday opening is a financial failure.

IMPORTED QUEENS; A SURE WAY OF INTRODUCING.

We have just received a consignment of 30 imported Italian queens, direct from Italy, by express. Every queen came through alive and in good order, and they are now introduced into the apiary without the loss of one. Our method of introducing with this lot was something we had not tried before on so large a number of queens. We took four or five strong colonies, and divided them up into 30 one-frame nuclei. This was done in the forenoon. In the afternoon we transferred the imported queens, without any attendants, to the Miller introducing-cage. Lest some of you may have forgotten it we reproduce the cut here. One end of this



cage is stoppered up with a long wooden plug, and the other end with a couple of blocks $\frac{1}{4}$ inch square, spaced apart $\frac{3}{8}$ inch with two strips of tin nailed on each side. This leaves a sort of oblong plug $\frac{1}{4}$ inch thick, and the width of the cage, with a hole $\frac{1}{4} \times \frac{1}{2}$ inch running centrally through. This hole is plugged with Good candy. To introduce a queen we simply placed the cage between a couple of combs, drawing the combs together until they squeezed against the wooden plug. In from 24 to 48 hours the bees will eat through and let the queen out. But, to return.

The thirty imported queens having been placed in as many Miller introducing-cages, we then placed one of each in each one of the nuclei above mentioned; they were then left for two days. Most of the queens were out at the expiration of that time, in good order, and they are now all out.

You see, the point is here: These newly divided nuclei will have old and young bees, and more or less hatching brood. Before the imported queen is released, the *old* bees will have returned to the old stand, and it is these old fellows that always make trouble in introducing. By the time the queen is released, there is nothing but *young* bees, including those that were brought to the nuclei stand and those that are hatched out in the interim. These, of course, all being young, will accept their new mother, without any trouble. The plan has proved to be so satisfactory that we shall employ it hereafter on all valuable queens.

FOUL BROOD; ITS TREATMENT AND CURE.

To many of our readers, and perhaps the majority, the rehearsing of much that is old on this subject may seem unnecessary; but as the information that has been gathered during the past seven or eight years, including our own experiments in the treatment and cure of foul brood, have been scattered through many different copies of the bee-papers, it is hard for the beginner and others, who have unexpectedly come upon foul brood, to get at the information quickly. We have already carefully considered the subject under the heading of "Foul Brood," in the A B C book; but as the disease seems to be breaking out anew in many quarters, and many questions are being asked, we will attempt to boil down the best that has been written, including the article in the A B C book, bringing the matter up to the very latest date.

SYMPTOMS.

Some of the brood fails to hatch. Cappings here and there are sunken and perforated at the center. On opening one of these cells there will be found a dead larva lying on one side of the cell, somewhat shrunken, and of a brownish color, varying all the way from a light pale brown to a dark brown. In the more advanced stages the brown is of the color of a coffee-berry after being roasted. In the incipient stages the brown is of the color of the coffee we drink, when greatly diluted with milk. But so far all these symptoms may be present as the result of chilled, overheated, or starved brood. But to determine whether it is the real foul brood, run a toothpick into the dead larva and then draw it slowly out. If the matured mass adheres to the end of the pick, about like spittle, and finally the fine thread breaks when the pick is drawn back, it is probably a case of foul brood. With all other forms of dead brood, with perhaps one exception, this ropiness does not appear; but with foul brood it invariably appears. Now, there is another symptom; and that is, the odor, while not exactly foul, resembles greatly that from a cabinet-maker's glue-pot; and when the disease is pretty well advanced in the hive, the odor will make itself manifest upon lifting the cover or quilt, even before exposing the brood. If other colonies are affected in a similar way, and the disease appears to spread, it is unquestionably a case of foul brood.

In the above we have referred to an exception where the diseased larvæ have a brown color, and yet show the ropiness—a sort of malady that will correct itself, and which is very apt to appear just before the honey-flow during hot weather. It appears very suddenly, and disappears just as suddenly. It is not foul brood, because it does not spread; and, so far as we can remember from our own apiary, it lacks the distinctive foul-brood odor. We wish we knew what it was.

TREATMENT AND CURE OF FOUL BROOD.

We have tried all the medicine, acid, or anti-septic treatments. We have carefully followed the reports as given in the bee-journals for such treatments; but so far we would not advise anybody to place very much dependence upon them. The carbolic-acid (or phenol) treatment is, perhaps, as good as any; but when it is strong enough to kill the germs of *Bacillus alvei* (the scientific name of foul brood) it kills the bees too; but even then we have found the disease would reappear in from a month to six weeks after its use. It seems to work a temporary cure; but such a cure in the case of foul brood is no cure at all. In fact, it actually does harm, because, if a more effectual treatment, which we shall give presently, is used, it does away with the *danger* of infection.

Now, understand, we do not mean to assert positively that phenol can not be made to cure foul brood; but our experience and observation convince us that the average bee-keeper had better let it alone.

THE PLAN THAT WE PREFER.

Having satisfied yourself of the presence of foul brood, or even having a suspicion that the disease is in some particular colony, prepare a clean hive containing only frames of foundation. Toward night shake all the bees from the diseased or suspected colony on to frames of foundation, and place the new hive on the stand of the old one. If possible, the new hive should resemble exactly the old one; otherwise the bees will be confused, and carry the germs of the disease to other colonies. Compel the bees to use up the honey in their honey-sacs in drawing out the foundation. Don't feed for a day or so.

The diseased honey in the honey-sacs will be converted into wax, and the new product will be entirely harmless. The old combs of the old hives should be burned. Do not try to economize by melting up the wax. You will not get enough of it to pay, besides run the risk of spreading the disease all over the apiary. The old hive should be immersed in boiling water for at least 15 or 20 seconds. Splashing boiling water on it will hardly be sufficient. Painting the inside of the hive with a strong solution of carbolic acid may answer; but we know that boiling the hives is effectual. The hive, after boiling, may be used again with perfect impunity, with new colonies.

We would not advise burning colonies. Unless you burn up every bee, the few that escape will get into some other hive, and do more damage than the treatment above recommended.

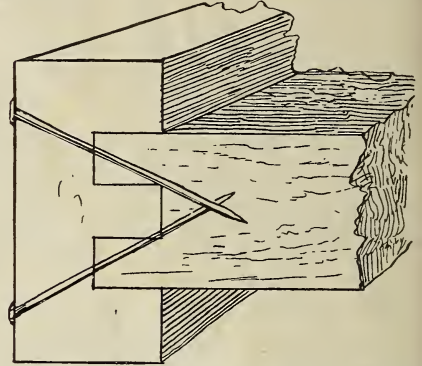
Caution.—Do not handle the infected colonies during the day, or when robbers are nosing around. Do not attempt to satisfy the curiosity of other bee-keepers who would like to see what foul brood looks like, smells like, etc. If you use any sort of brush for brushing the bees off the combs into the new hives, either burn it up or keep it for a while in boiling water before using it again on healthy colonies. Nothing but an old smoker should be used in working with foul brood. The boards of the bellows may, perhaps, with advantage be painted with a strong solution of carbolic acid; but after having rid the apiary of foul brood, burn up the smoker. Disinfect every thing where possible, that has come in contact with combs or hives that are infected with the disease, by immersing in boiling water. The hands should be thoroughly washed in water strongly tinctured with carbolic acid just strong enough so it will not quite peel the skin off the hands. A solution diluted 500 times, or the strength recommended in the phenol treatment, is hardly adequate. We have tested such strength in killing the germs grown artificially in test-tubes, and it seems to have no effect one way or the other.

If you are afraid of foul brood, cut this article out and paste it inside of your honey-house, where you can have it ready for immediate reference in case the disease should ever make itself manifest in your apiary. We have carefully tested personally the method we have recommended above, and know that it is effectual. Allow us to repeat that we have carefully tested personally the acid and medicine, or antiseptic treatment, and have found them to be practical failures. We are sure that our readers had better not try to experiment for themselves. It would be far better for them to accept the dictum of somebody else who has been through it all.

TRADE NOTES.

A NEW METHOD OF CLEATING HIVE-COVERS

I want to suggest an improvement on your Dovetailed-hive cover—see sketch. I have made covers as you make them, and the cover



will warp if exposed to the sun, and split the grooved cleat. It would cause but a slight alteration in the machinery, and would make a much better cover; and, nailed as shown, I think it would be a great improvement.

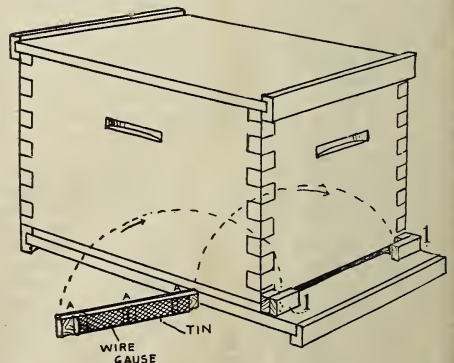
Bowls, Ga., March 15.

R. W. STEWART.

[We are of the opinion that friend S. has suggested a good idea. It is perfectly practicable, and may be an improvement over the old way. Indeed, we are seriously considering the advisability of making covers cleated, as shown in the stock for 1894. From a practical standpoint, however, we have had no trouble from covers cleated in the way we have used right along; but as localities differ in point of climate, a warping tendency on the part of the cover-board itself might be worse elsewhere than here. We should like to hear from our subscribers as to what they think of a cover cleated as above, and whether covers on the old plan do warp.]

DEVICE TO CLOSE HIVE-ENTRANCES.

I see in GLEANINGS from time to time some device for fastening frames, covers, bottom boards, etc., but I never saw any simple device for closing the entrance when about to move bees. I made a fastener last week. I know no whether this is new, but with me it is original.



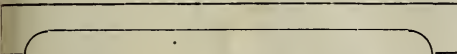
It need not cost two cents, aside from making and may be always at hand to slip into place. If it is of any importance to your readers, give it to them. Take two blocks of wood, $2\frac{1}{4} \times 1$

and $\frac{3}{4}$ inch thick; notch on one end $\frac{1}{2} \times \frac{3}{4}$ in. (Fig. 1); these are to be nailed to the hive permanently, each side of the entrance (be sure to have them just far enough apart to slip your Alley drone-trap in between, or you may have trouble when you want to catch drones or queens). Now take a strip of tin, $\frac{1}{2}$ inch wide by $10\frac{1}{2}$ inches long; a strip of wood $\frac{1}{2}$ inch square, $10\frac{1}{2}$ long; 3 blocks $\frac{1}{2} \times \frac{1}{2} \times 1$ inch long; make a frame out of this; let the tin be on the bottom; cover one side with screen wire, and you will have it (Fig. 2). Slip this in before the entrance, and fasten with a nail, button, or any thing else. Dimensions may differ to fit your hive. I use the Dovetailed hive.

Harriman, Tenn.

GEO. VANDERPILE.

[An entrance-screen such as you describe is perfectly feasible and practicable; but such as we employ is far simpler, and is the one suggested to us by Dr. C. C. Miller. It is simply a strip of wood $\frac{1}{4}$ inch thick, in length equal to the width of the hive, about $\frac{1}{4}$ inch wide, and scored out something in this shape. Wire cloth



is now folded for no other purpose than to give it stiffness, and nailed across this. A nail is driven into each end, so it just pricks through. When it is desired to attach it to the entrance for moving bees, or otherwise, three or four blows of a hammer will fasten each end very securely; but the wire nail is not driven far enough so but the head sticks out, so a claw-hammer will yank the screen off at one pull. We keep from forty to fifty of these in our apiary all the time; and whenever we are ready to move bees, or bring in a lot from an out-apiary, we put a quantity of these into a basket, and the work of fastening the bees into the hives is practically nothing. Referring again to the entrance-screens of Mr. Vanderpile, we would say that, unless the movable piece fits pretty tight, it is liable to hop out on the road, and then—oh my! if the bees get out and sting the horses! Our own experience in moving bees is such that we feel that we can not be too careful in making entrances perfectly tight. One bee may result in the practical ruination of the whole load of colonies; and not only the colonies, but of the wagon, and possibly of a good team.]

ASBESTOS LINING TO CRANE SMOKERS; WHAT IT IS FOR.

THE impression seems to prevail, that our reason for putting asbestos lining in the Crane smoker was so that both the cup and nozzle could be handled with the hand. That is a mistake. It would take too large an amount of asbestos to keep the outside cool. We use just enough to prevent too great a radiation of heat, and enough to make the use of the shield and such things unnecessary. Many times a nozzle can be handled very readily; but if the smoker has been going hard, it will be too hot to be handled without protection. We use a stick, and find no trouble in adjusting the nozzle. The knack can be acquired very easily. When said nozzle is curved it can be fitted on as neatly and tightly as it can be with the naked hand. While we are about it, we might say that we have made an improvement in the check-valve. We have put it on the new smokers in stock, and are willing to send it by mail postpaid to all who purchased smokers prior to June 15. Just let us know that you have one of the new Crane smokers, and we will send you a new valve that you can put on yourself.

KIND WORDS FROM OUR CUSTOMERS.

I received the goods you sent me. Every thing was all right, and of the nicest lumber, made in the best shape I ever saw. If a person deals with you he won't need a carpenter's outfit to make them go together.

JAMES PRATT.

Corning, Iowa, June 17.

I am just in from the apiary, and hasten to send in my dollar for GLEANINGS. I should have gone in by the first of May—a good thing for you that you did not stop it, for you would have fared badly at first opportunity. Wild alfalfa comes in for a big credit-mark in this section.

ARTHUR HANSON.

National City, Cal., June 1.

COWAN EXTRACTOR FAST ENOUGH.

I commenced extracting honey to-day. I have extracted about 1000 lbs. The queen-excluding honey-zinc bought of you last fall, not a queen gets through. The Cowan extractor gives perfect satisfaction. I don't want any thing faster.

Musson, La., May 1.

A. W. TUFTS.

A KIND WORD FOR THE WATER CURE.

I, like yourself, have been on the sick-list for the last three years; but, thank the Lord, I am getting tolerably well again, but not until I had about \$500 spent in doctoring. Seeing your warm-water cure, and also taking a medical journal that recommended it so highly, I resolved to quit medicine and try it; and I derived more benefit from it than all the medicine I ever took.

J. E. GAULT.

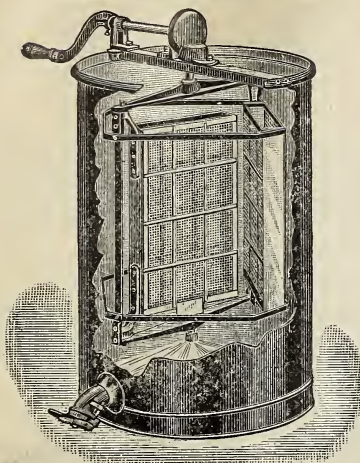
Sycamore, Ohio, June 19.

The *Ohio Farmer* gets off the following in regard to the way the Chicago people have managed:

Having cheated congress out of the money and the Lord out of Sunday, they now try to cheat the people out of 25 cents each by charging full price for half a show.

A NEW USE FOR POULTRY-NETTING.

THE grandchildren are getting to be old enough now to circulate around outdoors quite freely; and unless their mothers, aunts, or grandmother is on hand to give chase, there is no end of mischief going on almost continually. For instance, we have just had the turf cut out along our stone walk; and in place of the turf we put sifted cinders to keep the grass down. The whole thing was pronounced very nice; but as soon as Howard and Leland got a view of it they began clawing up the black stuff by the handful, throwing it over the walk, getting it in their hair, etc.; and it looked for a spell as if it would take all their relations to keep these two young hopefuls out of the black dust. One evening about sundown, however, Mr. Calvert made his appearance with two rolls of two-foot-wide poultry-netting, some oak stakes, big hammer, saw, etc. Before bedtime two little yards were made for the grandchildren. One of these is in the shade in the morning, and the other in the afternoon. Inside of the yards they have a lot of playthings and a great heap of clean white sand; and, oh my! but don't those boys have fun! Yes, and their mothers can leave them 15 minutes or even a whole hour without having to go on a general hunt to find where they have gone to. When they get able to climb over that two-foot fence, I suppose something else will have to be done; but at the present writing it has filled a "long-felt want." While they are playing in the sand-pile they have on some plain and simple clothing. After they have tossed the sand all over themselves and every thing else until they are tired, they are treated to a bath, and dressed up.

A Grand Success.

New Cowan Reversible Honey-Extractor.

May be Reversed without Stopping the Machine.

Strong, well made in every respect, light, and of convenient size. The can is but little larger than that of the Novice. The gear is beveled, and covered by an iron shield and the crank outside the can. Frank McNay, of Maunton, Wis., a bee-keeper who produces tons and tons of extracted honey, says of it:

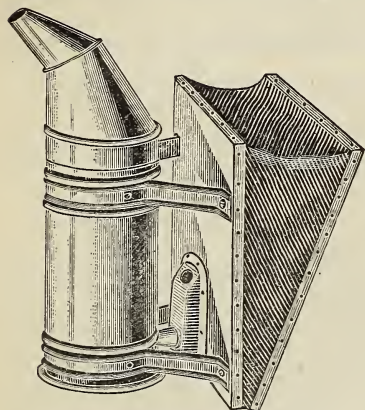
After carefully examining and trying the Cowan extractor, I have failed to find a weak part, and I do not hesitate to say that it is the best extractor made, both in regard to convenience and durability, and I shall replace all of my five machines with the Cowan as soon as possible.

It is indorsed also by J. F. McIntyre, an extensive extracted-honey producer in California; by W. Z. Hutchinson, Dr. C. C. Miller, Dr. A. B. Mason, and others.

Price all Complete, Japanned and Lettered, for L. Frame, \$10.

A. I. ROOT, MEDINA, OHIO.

NEW CRANE SMOKER NOW READY.



Smoking Capacity and Strength of Blast Simply Amazing.

The **New Non-Smoke-Sucking Check-Valve**, by which a great blast is secured and the bellows kept clean, and the **double lining of Asbestos and Sheet-steel**, by which the fire-cup and nozzle are kept from becoming uncomfortably hot during usage, are **DISTINCTIVE** and **VALUABLE** features alone possessed by the new implement. It would be impossible to tell of all its unique features, and so we say try it and fall in love with it.

Price, with 3½-inch fire-cup and curved nozzle, by mail, \$2.00 by express, \$1.75.

If your nearest dealer in supplies does not keep it, write to the authorized manufacturer,

A. I. ROOT, Medina, Ohio.

N. B.—Don't forget that we are headquarters for all kinds of bee-keepers' supplies. Our new 1893 catalogue of 52 pages now ready for mailing.

WE OFFER COMB FOUNDATION

**WHOLESALE AND RETAIL,
AT VERY LOW PRICES.**

Satisfaction and all work guaranteed.

Price List and samples will be ready before the next issue.

Send for them.

Prices will range from 36 to 56 cents per lb., f. o. b.

BEESEX WANTED. Write for prices.

W. J. FINCH, JR.,

31 E. Monroe St., 5-10db Springfield, Ill.
In responding to this advertisement mention GLEANINGS.

75 cts. each for untested queens from best imported mothers. **W. C. Frazier, Atlantic, Iowa.**

Good News.

For years I have not been able to dress myself, and for many weeks have had to be lifted out in my bed and chair. Under the pressure of necessity I have invented a device by which a child can put me to bed or take me up. The device can be used in any room or part of a room. A practical, simple, cheap device. Invalids will do well to correspond. I can help you. You can help me. Address

A. BEESON, Loveland, Col.

Friends,

I am now ready with those nice Italian queens, which I will sell at \$1.00 for untested; tested, \$1.50. Bees by the lb., \$1.00; frame nucleus, \$1.25; 2-frame, \$2.25.

Mrs. A. A. Simpson, Swartz, Pa.

Eggs and Plants.

Several varieties. Best quality. Any quantity. Finely illustrated catalogue free. Address

GEER BROS., St. Marys, Mo., or E. B. GEER, Nashville, Tenn.